

The Mining And Metallurgical Journal

VOL. XVIII. NO. 6

LOS ANGELES, CAL.,

December 15, 1897,

SAN FRANCISCO, CAL.

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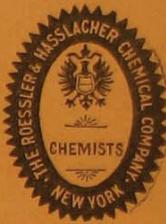
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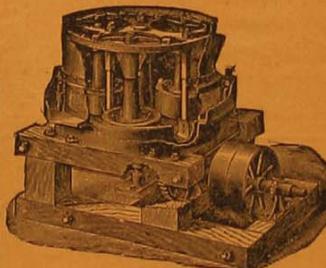
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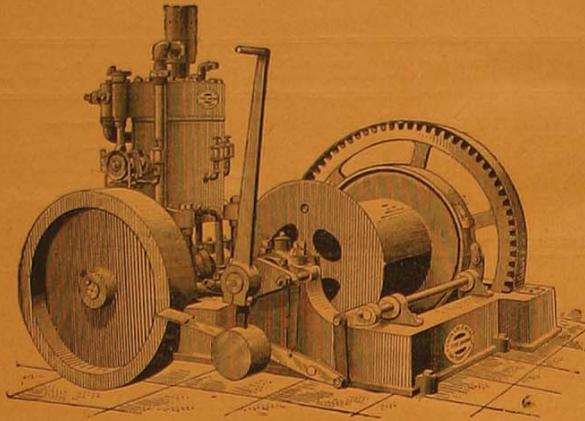
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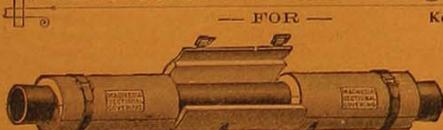
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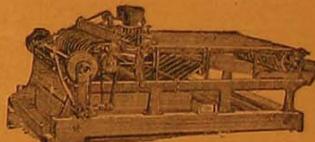
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ALPHABETICAL INDEX TO ADVERTISERS

A	E	M	S
Abbott, W. O.....	5	Ellis & Co.....	6
Agramonte, C. H. M. y.....	29	Ellis, H. R.....	22
Ainsworth, Wm.....	24	Emmeline, Wm. H.....	28
Albuquerque Foundry & Machine Works.....	1	F	
Allis Co., Edward P.....	28	Fauth & Co.....	27
Anti-Catrical Covering Co.....	24	Flint & Lomax.....	26
Aubury, L. E.....	26	Ford, E. B.....	5
Austin Bros.....	25	Fowler, G. C.....	30
Axelson Machine Co.....		Fulton Engine Works.....	28
B	G	N	T
Bailey A. A.....	24	Garburt, F. C.....	27
Baker & Hamilton.....	22	Garratt & Co., W. T.....	23
Baker Iron Works.....	20	Goldsmith Bros.....	28
Best Manufacturing Co.....	25	Gold & Silver Extraction Co. of America.....	4
Bi Metals Assay Office.....	31	Goodyear Rubber Mfg Co.....	6
Bondley-Ramsey Lumber Co.....	6	Grimwood, Chas. P.....	6
Bradley Pulverizer Co.....	6	Gutta Percha Rubber and Mfg Co.....	23
Brown & Co., F. W.....	6	H	
Brown, M. H., Horace F.....	6	Hallowell, E. L.....	28
Bullock, M C Mfg Co.....	1	Hanford Iron Works.....	20
Burbridge, S. L.....	27	Hanks, Abbott A.....	24
Burlingham, B. E.....	25	Hassell Iron Wks Co.....	24
Burlingham, U. D., M. E.....	31	Harrington & King Perforating Co.....	6
Byron Jackson Machine Works.....	20	Harper & Reynolds Co.....	24
C	J	P	U
Coggin, A. S.....	28	Hendy Machine Works, Joshua.....	6, 25 &
Coldwell Bros.....	5, 23, 25	Hercules Gas Engine.....	18
Cal Bells Mfg Co.....	24	Hendy Machine Works, Joshua.....	26
California Perforating Screen Co.....	25	Hockelmann and McCann.....	22
California Wire Works.....	29	Hendy Machine Works, Joshua.....	27
Chaps Smelting Co.....	22	Hendy Machine Works, Joshua.....	28
Chamberlain, Lee & Co.....	30	Hessey, Clarence.....	5
Charleson Percy, W.....	22	Heer, Peter.....	3
Chauvenet & Brother, Regis.....	3	Howe, Frank H.....	28
Chicago & Aurora Smelting & Refining Co.....	1	J	
Chicago School of Assaying.....	1	Jardine, J. B.....	22
Chrome Steel Works.....	21	Jeffrey Manufacturing Co.....	24
Coates, H. P. G.....	21	Jehu, W. N.....	24
Corliss & Son Works.....	24	Johannesburg Sampling Works.....	24
Cook, Fred R.....	23	Johnson & Musser.....	28
Cooley, Geo M.....	27	Jones & Jones.....	3
Compania Industrial Mexicana.....	26	Judson, A. F.....	1
Consolidated Pipe Co.....	3	K	
Con. Kansas City Smelting & Refining Co.....	1	Kempton, C. W.....	28
Crawford, J. J.....	22	Kern Co. Assay Office.....	27
D	L	R	V
Dame, W. E.....	26	Lacy Manufacturing Co.....	30
Denniston, E. G.....	25	Leffel & Co., James.....	24
Denver Fire Clay Co.....	27 & 29	Lexow, Theo.....	4
Denver Public Sampling Wks.....	30	Lloyd, B. T.....	20
Denver & Rio Grande Railway.....	24	Longeran & Calkins.....	24
Des & Co., Thos J.....	28	Los Angeles Business College.....	30
DesSolla Dressing Co.....	3	Los Angeles Tent and Awning Co.....	31
Dickman & Mackenzie.....	3	Luckhardt, C. A.....	25
Doub, D. M.....	26	Lynch, Jno.....	30
Dow Steam Pump Works.....	22		
Drake, Dr. W. F.....	31		
Dredging & Mining Machinery Co.....	28		
Ducommun, C.....	20		
E	M	N	O
Machinery and Electrical Co.....	22	Machinery and Electrical Co.....	29
Matteson Manufacturing Co.....	28	McDearmon & Co.....	23
McGleowen & Co.....	2	McIntosh & Wolfman.....	24
McGlew Ore Concentrator.....		Michigan Mining School.....	28
Montague, W. W.....	5	Montgomery, Ward & Co.....	25
Montgomery Machinery Co., J. H.....	24	Morgan & Co.....	2
Morris Rock Breaker and Ore Crusher.....	26	Morris Rock Breaker and Ore Crusher.....	26
Murray Iron Works.....	28	Murray Iron Works.....	25
G	P	O	T
National Iron Works.....	5	National Iron Works.....	5
Nelson & Co., H. L.....	25	Nelson & Co., H. L.....	25
H	Q		
Ohlandt & Co., N.....	28		
Oregon Railroad and Navigation Co.....	5		
I			
J			
K			
L			
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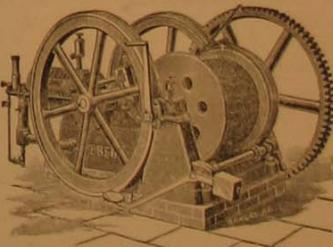
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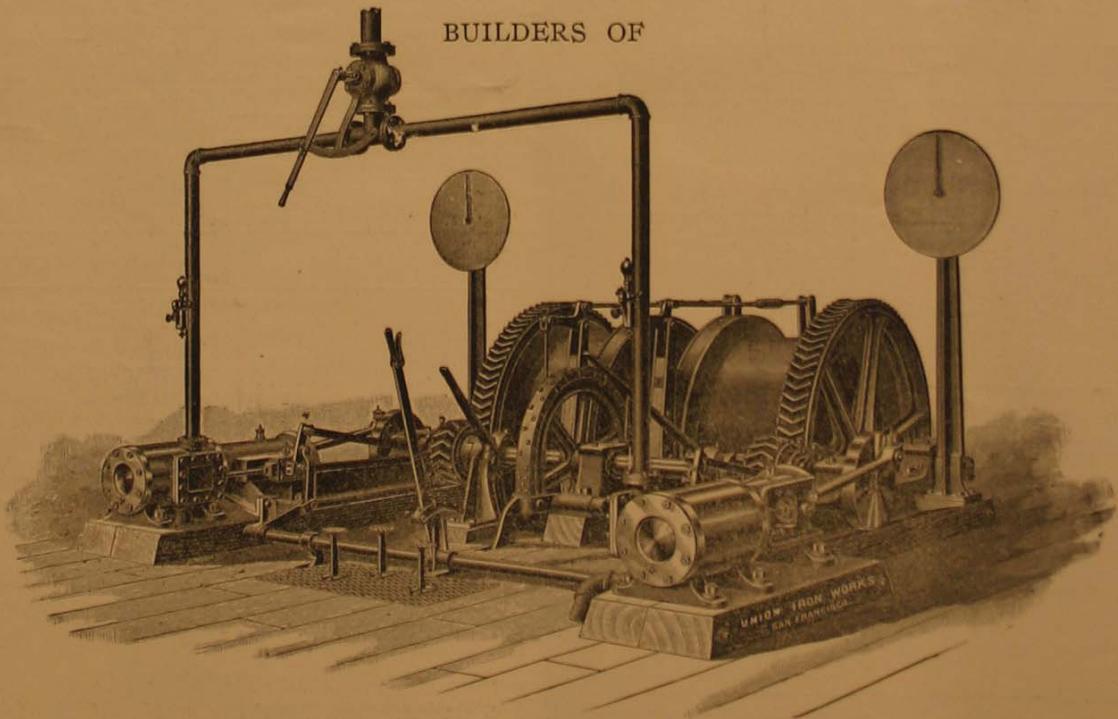
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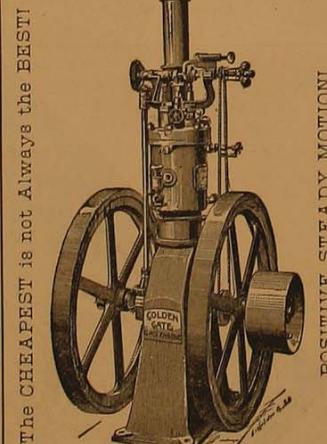
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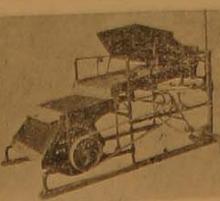
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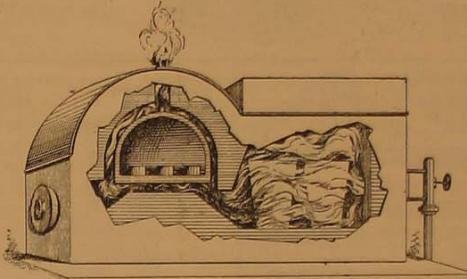
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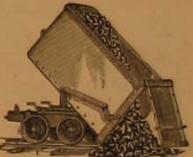
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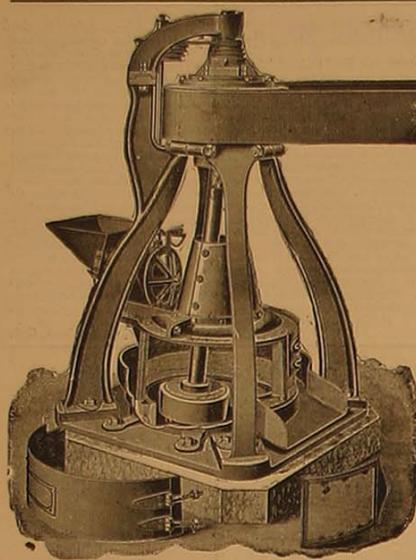
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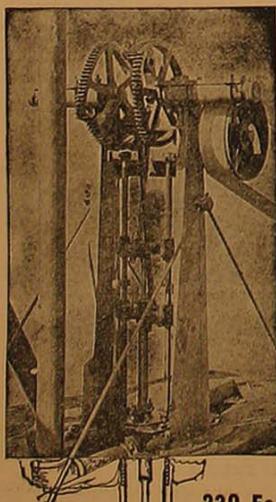
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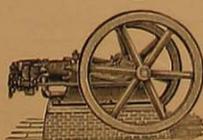
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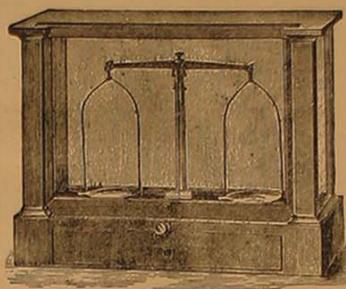
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MINING STOCKS AS AN INVESTMENT.

The mining of the many branches of the mining industry is such that it necessitates the formation of joint stock companies. By this means the required capital can be secured, and the liability of the owners is generally limited to the amount of stock held by each individual. But as all stocks, whether mining or of other kinds, are not always safe investments, the purchaser has to exercise a due amount of business caution and investigation before investing in them. Recent sales of fraudulent stocks by unreliable private parties call forth these remarks. If the stocks offered for sale are listed on any Stock Exchange their value is easily ascertained, but if not, intending purchasers ought to consult any reliable stock broker or mining engineer, in the case of mining stocks before investing. A beautifully executed piece of lithographic work in the form of a certificate of stock is no evidence of its value, for the estimate of its worth consists in the commercial standing of the undertaking and of the parties by whom it is issued. If the purchaser of the stock does not know the standing of the company in which he or she is asked to invest, and does not take business measures to inquire as to its value beforehand, then they do not take a business risk, but accept a gambling chance, devoid of all ordinary forethought which they would use in the purchase of any other article. Under such circumstances the inevitable loss which is almost sure to follow, cannot be attributed to a failure in the industry which the stock sold pretends to represent. Unfortunately for the mining industry, dishonest people know of the fortunes made by investing in honest mining enterprises, and take this means of selling fraudulent stock certifi-

cates to those who do not take the trouble to investigate and use business principles before they make the investment. Such a loss is in no way connected with the mining industry, for it is gambling pure and simple—as in buying a pool ticket for a horse race, but unfortunately for the defrauded investor, there is no horse in it with a chance of winning.

THE JUBILEE OF CALIFORNIA GOLD.

The fiftieth anniversary of the discovery of gold in California, which event occurred on the 18th of January, 1848, is to be celebrated in San Francisco on 24th January, 1898.

The Golden Jubilee Fair is intended to show the past history and present importance of gold mining as a state industry. With that object in view, the Society of California Pioneers, the California State Miners' Association, the San Francisco County Miners' Association, the Manufacturers' and Producers' Association, the State Board of Trade, and the Alaskan Trade Committee, are to join forces and make the fiftieth mile-stone on the golden road of the State's chief avenue of wealth. The time is opportune and the motive patriotic, as it will attract the attention of the world to the fact that California is still a large gold producer, and has abundant field for the safe investment of capital in no less than thirty seven counties, of many thousand square miles in area. All kinds of processes and machinery of the best, latest pattern, most economical in construction and use of power, for the mining and milling of gold ores will be on exhibition. The project is worthy of the support of all interests to make it a success, but especially do our railways require to show a generous and active appreciation in that which ought to interest themselves most, attract travel to the Fair, and eventually more mining development and investment of capital in the mining industry of the state.

MINERAL ORIGIN OF PETROLEUM.

The *Mining and Scientific Press*, of the 20th ult., prints, without remarks, the following fallacy regarding the origin of petroleum, under the heading of "Scientific Progress":

"Prof. Mendeloff has advanced the theory that petroleum is of mineral origin, and that its production is going on and may continue almost indefinitely. His hypothesis is that water finds its way below the crust of the earth, and there meets with carbides of metals, particularly of iron, in a glowing state. Oil-bearing strata occur in the neighborhood of mountain regions, where it may be supposed that the dislocations of the strata afford passages for the access of water. The water is decomposed into its constituent gases; the oxygen unites with the iron, while the hydrogen takes up the carbon and ascends into higher regions, where part of it is condensed into mineral oil and part remains as natural gas, to escape where it can find an outlet, or to remain stored at great pressure until a bore-hole is put down to provide it a passage to the surface."

The mineral origin of petroleum has unfortunately for the "Professor" been proved to be a grand chemical error, born in the laboratory and fathered by a mind which lacked geological training in the field, among the palaeozoic or fossil-bearing rocks, ranging from the Trenton division of the Lower Silurian formation of the eastern geologists as the lowest oil-bearing strata. While on the Pa-

cific Coast the oil-bearing rocks are of much more recent date, and are of Cretaceous or Tertiary age. Below the lower part of the Trenton limestone the oil drillers never drill, for they have found out that after reaching the crinoidal limestone beds, drilling is discontinued, as experience has proven that the rocks below this, called the Chazey sandstones and green shales (the green sand of the oil drillers) are destitute of oil, and the abundant fossils above it, which produced the oil, and are also the cause of the accumulation of the gas in these rocks.

Of the carbides of the metals in nature we know nothing, but the carbonates of iron are the ores of the coal measures or carboniferous formation, and are newer than the gas formation, and are found above them. The iron ores of the older or primary rocks are always magnetite, specular iron and hematite, or oxides of iron, and in their vicinity oil is never found. If the carbides of the metals produce oil by the change mentioned, why is it that in the neighborhood of large ore bodies oil and gas are not found? The reason is that the immobile shell fish, of the orthoceras species, of the Trenton period, which produced the oil, are wanting.

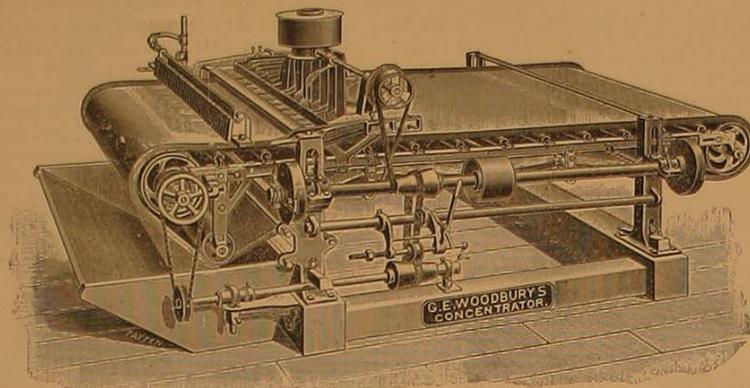
In making railway rock cuts, in Trenton limestone, these large shell fish, which measure from seven to nine feet long, if broken open, yield a cup, or half a cup, of crude petroleum oil, and when we remember that several hundred feet of this limestone is composed of these and other forms of marine animal life, we can understand the cause of the oil and gas collecting in these rocks. The oil and gas supply is therefore limited, and is not being replenished, as exhausted oil and gas wells and districts prove.

But the "Professor" is only making history repeat itself, for when the chemist enters the field of the geologist, and propounds very erroneous and doubtful theories of the formation of natural mineral products, according to the theory of what may be done in the laboratory, his discovery might be recorded as "Scientific Progress," if the chemist could keep the oil driller or prospector from sinking a hole in his theory and demonstrating its error. The facts in the case, as recorded by the labors of the geologists, prove conclusively the animal marine life origin of petroleum, so that there is not a shadow of a doubt on the subject.

MINERALS ON HOMESTEAD LANDS.

Under our Federal laws, the homestead is only supposed to be granted to lands holding no minerals, and the party getting the homestead has to swear that he knows of no minerals on the land before patent is issued. When the patent is issued, whether to the homesteader or to a railway company on a railway grant, which is also supposed to be non-mineral land, cases are known where minerals of economic value have been found. In the respect of reserving the minerals for the use of the miner on such land, our laws are incomplete and a failure, as they do not reserve the minerals for all time for the mining section of the people.

Under the present unjust system, if a dishonest prospector or miner desires to get a patent to one hundred and sixty acres of partly mineral land, all he has to do is to homestead it and cultivate potatoes until the clouds of the doubtful ownership of the minerals roll by, and then get his patent and go to mining. The proper way for our government to do is to reserve the minerals for al-



WOODBURY SIDE SHAKE CONCENTRATOR

time on such lands, and grant leases to prospectors and miners to work them when discovered, and for the miner to pay the surface owner for any damage or surface used in the operation of mining on the land. Under the present system, millions of acres of mineral land have passed into private control, and the mining interests of the country have been consequently retarded. It is high time that this dishonest system of patenting mineral lands was stopped, and the minerals reserved for those who will work them. The government that protects us against foreign manufacturers, and does not protect the industry of mining at home on our own land, practices a one-sided policy and neglects a public trust.

THE PRESIDENT'S MESSAGE.

That part of the President's message which will excite the most public attention is in regard to the money question. It has been discussed for several years more than any other subject of an economic character, and there is great diversity of views, varying between two extremes.

It has been supposed that a definite plan for revision of the system would be presented in the message, and that the President would urge its adoption upon Congress. The Secretary of the Treasury, a bankers' committee and others have had the subject under consideration for the last eight or nine months, and it has been expected that there would be evolved something that would receive presidential approval. This expectation has not been realized. The Secretary of the Treasury, the President states, has prepared a plan in great detail, but indorsement is not given to it in the message, it is only commended to congressional consideration.

There are some specific recommendations made, and among them that the banks be permitted to issue notes to the full face of their bonds deposited with the government to secure their circulation. No harm can come from granting the privilege, for the bonds are at a premium, and they ought to be good security for 100 cents on the dollar. There is this to commend the change, which is that it will increase the money volume \$20,000,000 more on the bonds already deposited, and it is not improbable that the banks will increase their bond deposits, which will further enlarge the money volume.

Another recommendation is that no notes be issued under the denomination of ten dollars, which would have the effect of enlarging the use of silver in domestic transactions, which will please the friends of silver. The President, however, does not say a word

about silver, evidently thinking that it presents a rugged issue which it would be unwise for him to touch.

If his language is taken at its fair import, he is incorrect in regard to the obligation to put the whole of the \$900,000,000 outstanding paper money at par with gold, for the silver certificates are expressly redeemable with silver coin; nor is there any obligation to make the silver dollars as good as gold, for they are so now, as they possess full legal tender quality in payment of all debts and dues, public and private.

The recommendations specifically made will not give symmetry to our money system nor remove its complexity in the least. His treatment of the money question leads to the belief, or at least to the suspicion that it is not deemed wise to open the money question during the present session, from fear that it will lead to consolidation of all the elements of opposition to the go'd standard policy, and impair the prospects of a majority of the next house of representatives being favorable to the administration.

His hope that something may come out of the Wolcott commission favorable to international bimetallism, after so many failures and rebuffs, betokens a more sanguine temperament than sound judgment. Men of thought will be disappointed that the President has not taken a decided stand in favor of some definite and comprehensive monetary measure.

The suggestion that the banks be required to redeem their notes with gold, in order to relieve the government from an obligation to redeem its notes in like manner, presents the question that if the government is unable to command a sufficiency of gold, how is it expected that the banks will be able to do it? However valuable credit money may be, confidence in it must rest upon some substantial basis. If that basis be metallic, it is important that it should be broad enough to supply the country with a circulation adequate to the needs of commerce. This raises the question whether there is gold enough in the country, or in the world, to safely float a sufficient volume of credit or confidence money? Experience will sooner or later evolve a satisfactory answer.

Articles of incorporation of the Monitor Mining and Milling Company have been filed in the office of the Secretary of State at Sacramento. The principal place of business is Monitor, Alpine county, California. Capital stock \$1,000,000, all subscribed; with Arthur Kennedy, of Alleghany, Pa., Peter Curtz and E. L. Curtz, of Monitor, H. F. Musser, of Markleeville, and George C. Brandman, of New York City, as Directors.

Woodbury Side Shake Vanner or Concentrator.

The machine consists of an incline shaking frame or table supported upon four upright springs from the four upright corner posts; these springs effectually give the shaking frame a peculiar even motion, that is necessary to give the best results in concentrating. A side shake or lateral motion is imparted to the frame by means of steel connecting rods, attached to adjustable cranks. These adjustable cranks are a good feature to this machine, as it allows the operator to adjust the throw or movement of the shaking frame to any desired length, thereby adapting the movement of the frame to working different kinds of ores.

Upon the shaking frame is an endless rubber belt with raised corrugated edges, forming a bed or plain upon which the ore is concentrated. The edges of the belt are made in corrugated form to prevent them from cracking, as is the case with plain edges.

This belt is caused to travel continuously or at will, by rotating the head drum, the power of which is transmitted by means of a flexible belt which does not affect the movement of the shaking frame. In case where chains are used for feed work, it being ridged, it pulls and jerks the shaking frame, causing the pulp to gather or bank up to the side of belt. The travel is under full controll of the operator and can be regulated to any speed, started or stopped at will.

The distributing table to this machine is a very desirable improvement. It consists of a slowly revolving bowl, or receptacle for the pulp. From the bowl the pulp is discharged in perfectly even quantities of both water and sand, through distributing channels to the whole surface of the belt, and does not allow the pulp to be distributed any more to one side than to the other; the fact of distributing evenly is what has never been accomplished on any other Concentrator, and this alone goes a great way to produce the perfection of work not obtained with any other Concentrator. This improvement is secured by strong patents.

The side shake or lateral motion given the bed causes the sulphurets or valuable portion of the ore to settle upon the surface of the belt; the pliable or soft surface of the rubber retains the valuable portions, while the jets of water at the head of the table or belt wash back the sand, leaving the clean particles of metallic ore of value to be carried to the tank underneath the belt, to be removed at will.

Having had twenty years of practical experience in concentrating ores, the inventor has arrived at a very fair conclusion of what is best to be done to produce a machine that will best produce the desired work to accomplish this, much depends upon the material used—especially the belt, and material for the whole machine; and too much stress cannot be given to the detail construction, which can be acquired only by long experience. Other manufacturers of slight experience copy after machines of this pattern. We presume that they consider it of little importance to take the details of construction from this machine and use them as their own, and give the public to understand that everything originated with them. Such manufacturers do not produce a Concentrator without there is something lacking to perform good work. Geo. E. Woodbury, 141-143 First Street, San Francisco, Cal., manufactures two kinds of Concentrators—both the end shake and side shake. The end shake or multi-belt machine is so well known that a further description does not seem necessary.

ASPHALTUM.

The production of asphaltum and bitumenous sandstone in the United States fell off heavily in 1896, but has had quite an increase this year; asphaltic limestone showed an increase in 1896, and no change in the production has been recorded in 1897. Asphaltum was mined in California and Utah; asphaltic limestone in Utah, Texas, and the Indian Territory; bitumenous sandstone in California, Kentucky, and the Indian Territory.

The production of asphalt and bitumenous rock in California, for 1895 and 1896, was 296,892,000 pounds, with a total value of \$483,986. The world's production of asphaltum and asphaltic rock, from 1891 to 1895 inclusive, as far as could be ascertained, was 7,412,872,000 pounds.

The vast deposits of bitumenous rock in Santa Cruz county, California, lie in the foothills, facing the coast, west and a little north

coast. The open cuts are in out-jutting points of a hill. No. 1 is more than 300 feet long, with a face 110 feet high, which shows the following:

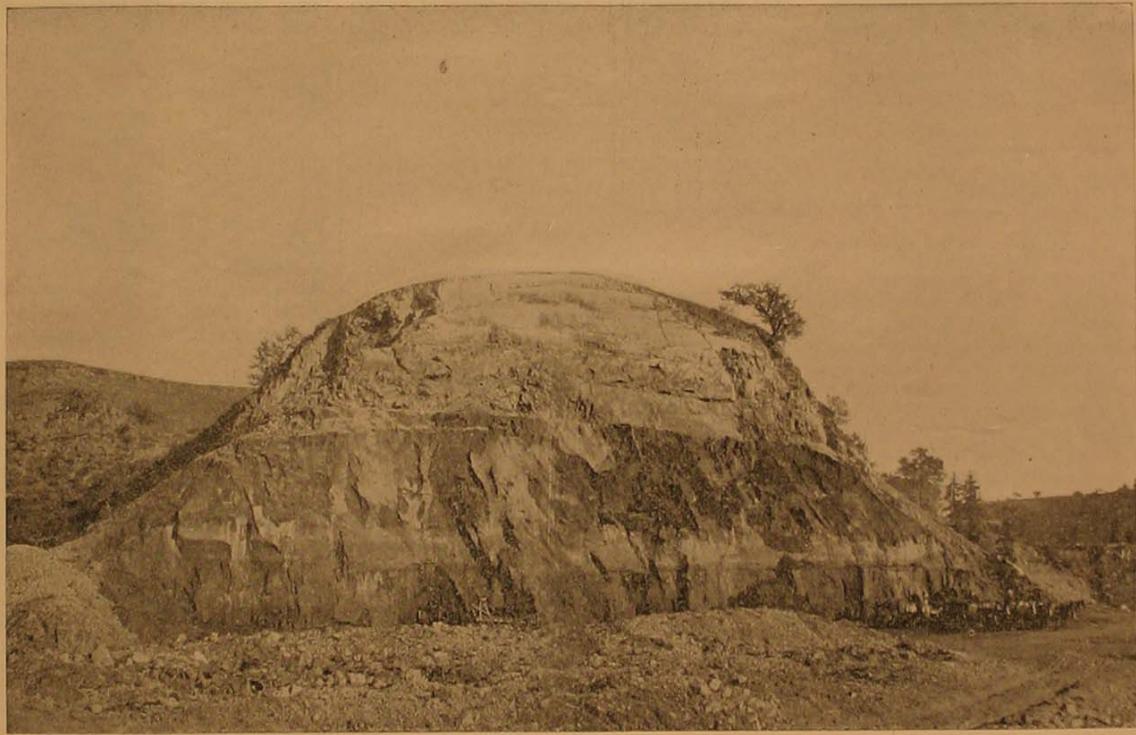
Light colored shales.....	60 feet.
Massive bitumenous rock.....	30 "
Very soft sandstone.....	8 "
Massive bituminous rock.....	12 "

Underlaid by soft sandstone and shales.

The lower stratum of bituminous rock contains coarser sand than the upper one, in which the sand becomes finer as the top is approached.

The bituminous rock in mines, Nos. 1, 2, and 3, is generally soft, while that in No. 4 is harder. The rock is mined by first stripping off the shales, then boring a series of holes, 10 to 20 feet deep along the face, after springing them with high explosives, they are charged with black powder and fired simultaneously by electricity. It is not unusual to throw down 500 tons at a single

consolidation of petroleum, which occurs in abundance in the same localities, and is often seen oozing out of the ground or floating down the streams. In composition it is not unlike Trinidad pitch, the Utah gilsonite and the Canadian albertite, but it is of superior quality to any of these. It is supposed to equal the Egyptian asphaltum in quality, but there is a doubt as to the correctness of this view. The analysis of the best quality of manjak is: Moisture, 2.00; volatile organic matter, 70.85; non-volatile organic matter, 26.97; mineral matter, 0.18; total, 100.00. As ordinarily met with, however, it does not quite come up to this analysis. It contains rather more—about 5 per cent—moisture and mineral matter. Referring to the analysis of Trinidad pitch, we find that it contains between 21 per cent and 30 per cent moisture and about 38 per cent ash, so that the superior richness of manjak in natural



BITUMENOUS ROCK QUARRY OF THE CITY STREET IMPROVEMENT COMPANY IN SANTA CRUZ COUNTY, CAL.

of the City of Santa Cruz. They occur for the most part in almost horizontal massive strata, which crops out on steep slopes of the hills, covered here and there by light-colored shales and the debris resulting from their disintegration. They have been extensively eroded and now lie in large irregular fragments distributed over a large area. Masses of bitumenous rock, in vein-like deposits also exist in places. The rock is as irregular in character as it is in distribution; but we may safely predict from present developments that the commercially valuable bitumenous rock will not be exhausted for many years. The methods of mining by all companies is essentially the same.

We present herewith an illustration of the Bitumenous Rock Quarry, of City Street Improvement Company. This company owns a group of four mines, known as No. 1, 2, 3 and 4, which are about twelve miles northwest of Santa Cruz, and three miles from the

blast. The rock is then broken up into suitable sizes for handling, carefully assorted and hauled to Santa Cruz for shipment.

The following discovery of deposits of asphaltum in the island of Barbadoes, of the West Indies, will be of interest to those interested in asphaltum deposits in this country:

The discovery was made some months back of large quantities of a certain mineral—locally called "manjak"—which bids fair to outrival in point of utility all the similar substances that occur in various parts of the world. Manjak is of a black color, possessing a high luster, and having a bright chonchoidal fracture, in appearance resembling newly broken pitch. In Barbadoes it is found very near, and sometimes upon, the surface of the ground, in seams varying from one foot to two feet in thickness, running usually at an angle of about 40 degrees, and in close proximity to rocks. It is supposed to have been formed by the drying up and

bitumen, as compared with Trinidad pitch, is evident. Among the various uses to which manjak has been successfully applied may be mentioned: (1) As insulation for electric wires; (2) as varnishes of the best quality; (3) as bituminous concrete in asphalt roads and pavements; (4) as patent fuel, mixed with peat or other organic matter; (5) in small percentages, as an intensifier of the illuminating power of coal gas. Such satisfactory results have been obtained by its use for insulation that it is expected by some experts that it will soon supplant rubber in all waterproof work.

M. M. O'Gorman, secretary of the Middle-march Copper Company of Los Angeles, Cal., which has several promising properties near Tombstone, has about closed negotiations in Denver for the purchase of a large smelting plant to treat the Middle-march product.

The Copper Industry.

The copper mining industry in the United States in 1897 was extremely prosperous. The average price of standard Lake, \$10.75 per 100 pounds, as compared with \$10.88 per 100 pounds in 1896. Though the prices have not been maintained as in 1896, the production has increased considerably.

Two new producers, the Mountain Copper Company, of California, and the Mount Lyell Mining and Railway Company, of Tasmania, about 400 miles south of Victoria, in Australia, appeared in the field in 1896, and their production has been very important this year.

The Union and Satellite mines were idle in 1896, and the production of California was almost entirely from the property of Mountain Copper Company, which is the successor of the Mountain Mines, (Limited) on Iron Mountain, near Shasta, in Shasta county.

The mines which have been opened systematically, show a large body of gold and silver-bearing sulphide ore, averaging 7 per cent cu. They were purchased by an English syndicate, in January, 1895. The mines

Stowell mine, Windy Camp group, etc. The ore bodies are remarkable for the large masses of solid sulphides, carrying iron, copper, silver, and some gold. Opportunity for deep tunnel workings are exceptionally favorable from the Squaw Creek side of the mountain. The company own a water right of 400 inches on North and South Squaw creeks, which may be delivered under 650 feet pressure, through 2½ miles of flume.

The world's copper production of 1896 was 774,414,000 pounds. The copper production of the world for 1893, 1894, 1895 and 1896 was 2,735,484,000 pounds.

In 1892, there were about thirty electrolytic refineries in the world, producing a total of 32,000 tons of electrolytic copper annually. Yet, in 1893, the production of electrolytic copper in the United States was 37,500 tons, or about one-fourth of the copper production of the United States. In 1894, it had risen to 57,500 tons, or almost one-third of the entire copper output; and, in 1895 and 1896, it reached the enormous totals of 87,000 and 124,000 tons respectively, which equals

CORRESPONDENCE

CALIFORNIA.

(From our Special Correspondent)

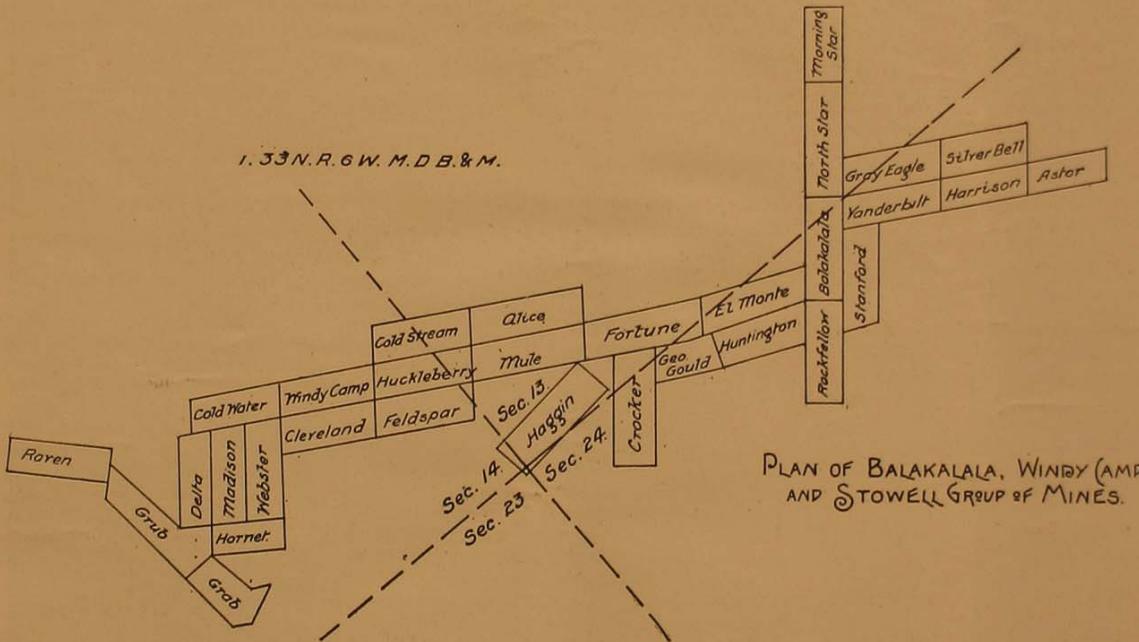
DALE CITY, Dec. 17, '97.

EDITOR JOURNAL: Times are quite lively in this part of the country at present, as nearly everyone owning mines here are doing their annual assessment work.

Curtis & Donovan have struck it rich on a placer mine that they located lately. They are taking out from \$30 to \$50 per day, with a small dry washer. They have taken out over \$5,000 so far this year; others are making good wages dry washing and are taking out some fine nuggets.

A. Merriam found a fine nugget the other day, worth nearly \$40.

Mr. Barr is doing an assessment for Fink & Curtis. He has concluded to let his bonanza grow a while before doing much more on it.



are connected with smelting works at Keswick by a narrow-gauge railway, 10.7 miles long.

Keswick smelting works, which were originally designed for the pyritic process, were put in operation in the early part of 1896; but the method not proving wholly successful, the works were altered to follow the Montana blast-furnace practice, with a preliminary stall roasting of the ore, since which they have been run to good advantage.

The Mountain matte is shipped by railway to the Atlantic seaboard for refining. The present capitalization of the Mountain Copper Company is \$6,250,000. The production of the state of California in 1896 was 1,971,545 pounds, of which the Mountain Copper Company shipped 1,821,545 pounds.

The Balakalala mines are located 7 miles northwest of Copley, and comprise 11 claims, with a general northwest course, showing a pronounced gossan out-crop, spreading in places over 100 feet in width. The formation extends through many miles of country, including on its course the Iron Mountain mine,

one half to six-tenths of the entire American copper production, or nearly one-third of the production of the world. The estimated daily output of the eleven refineries of this country, now in operation, is 350 tons.

It is interesting to note that the cost of refining copper has decreased from about \$19.50 per ton in 1892 to \$8 in 1896. In the west, the average cost, exclusive of office expenses, is from \$10 to \$12, and in the east from \$8 to \$10 per ton of blister. This compares very favorably with the cost of electrolytic refining in Europe, which lies between \$13 and \$18.

• • •

The O. R. & N. R. R. has gotten out a publication termed, "The Gold Fields of Eastern Oregon;" "There are now in this unboomed Oregon Klondike," says the booklet, "513 gold mines and claims in all stages of development, but every one of them sufficiently opened up to show the character, and, in some measure, the dimensions of its ore body. Among the number are 11 mines, that it is estimated will yield \$1,575,000 in gold."

Lee & Hinkley have struck some fine specimen rock in their mine. They have a fine property and are developing it in good shape.

A. C. Goacher has a few men at work developing his numerous properties, and is taking out some good pay dirt.

J. D. Rankins & partner have commenced work on their Bon Ton mine. It is without a doubt the best property in this part of the district for a good company as the ledge is large and a good grade of ore. They have two claims on the ledge and have several shafts on them—situated about 10 miles south of Dale City.

J. G. Young has taken a lease and bond on the Jim Budd mine, and has struck a fine shoot of high grade, a part of it is red oxide of copper showing free gold, and assays up in the hundreds; also, has fine indications for water, which would be a bonanza in itself.

Jack Killian & partner have out several tons of good ore that they will soon run through the little mill at Dale.

Mr. Meacham will soon move his mill from 29 Palms to this place.

What is needed here is a good stamp mill and concentrators to do custom work, as this part of the country is ribbed with ledges of the precious metal, and there would be a hundred men at work here, where there is only one now, if they could get their ore worked at a reasonable cost. It would pay some good enterprising man with means to investigate and build a good custom mill.

SIM DIP.

EDITOR JOURNAL:—Having heard some slighting remarks about the Old Woman Mountains, I thought your readers might like some facts and figures that can be easily verified. These mountains commence about six miles south of the Santa Fe P. R. R., near Danby, run about twenty miles north and south, about the same east and west, being about 350 square miles in area, more or less, rather more. The most southerly camp is known as Sheep Camp, about 20 miles south of Danby. At present there is one man working in the camp, Mr. Owen Grey; but last summer it was pretty lively, there were eleven men working in the camp. There was ore shipped from there to the Kingman sampler by four different parties, namely, Knuckles, McArdle & Moyer, McCarthy, and Smith & Jones. I cannot get any of the returns except those of Smith & Jones. Their ore worked 307 ounces silver and \$56 gold. I expect that the camp will be just as lively next summer when the assessment work is done with. Water facilities are good.

About ten miles northerly lies the Scanlon district, where at present there are four men working, namely, Smith & Jones, McDonald & Likens. Smith & Jones are working on the Silver Wave, having ore rich in silver and assaying as high as \$80 gold. They have plenty of ore. From this mine, Scanlon shipped ore to the King mill, Calico, that worked silver, 200 ounces; gold, \$30. McArdle & Moyer also shipped from the same mine to Kingman ore that worked silver, 150 ounces; gold, \$23. Smith & Jones have not shipped from there yet.

Across the canon from the Silver Wave lies the Horn Silver and Little Chief where McDonald & Likens are working. They shipped ore from the Horn Silver that worked at Kingman, silver 78.60 ounces; gold, \$30. They have also shipped from the Little Chief, from which they have not got returns yet.

These shipments from both camps are all within a year, except Scanlon's, that was shipped about four years ago; besides from the same camp, McArdle shipped twice from the Little Mack, once to Calico, 90 ounce silver, \$15 gold; once to Selby & Co., 75 ounce silver, \$15 gold. McDonald also shipped last year from the Morning Star and others to Kingman; it worked, silver 50 ounces, gold \$50. Now that is a pretty good showing from a mountain that has nothing in it, and to be done by poor prospectors without one cent of outside capital. Water facilities are first class in this camp.

About three miles across Carbonate Hill lies McClellan's camp. He has some pretty good claims, from which he has packed ore down to the station; it is not shipped yet. We cross the mountain and come to where the only failures were ever made; in fact, the only place here where there has been anything invested by outsiders. The first claim is the Savanah, formerly the Florence, formerly the Parker. From this claim was shipped one car of ore by Brownell, Parker &

Sullivan, Brownell going with it to Denver. It was this ore that brought Blake to this section, where he made a grand failure by employing anything but miners to run his mines.

One mile further on are the Sunset Company's mines. Here Sellick, Tabor & Co. bonded this group for \$30,000, from M. A. Thompson and others. They bought the Hattie mine for \$5000. They made some payment on the bond. They paid in full for the Hattie. This was done on the report of an inexperienced boy, who had run car at Tintic, Utah. This company worked a while and quit, as it did not come up to their expectations—a repetition of the Blake business. From this same group, Knuckles & Parker shipped some very good ore, and Knuckles & Page worked some very good ore in the little two-stamp mill that is now on the ground. This camp is on the edge of desert, about 6 miles from Danby. There has been nothing but gophering done here.

Six miles east, we come to the Old Dominion camp. It lies on the flat, between the Old Woman and Coyote mountains. This is comparatively new ground, not much having been done before the present company started work. Jamison shipped ore from that section that paid. Domingo also shipped ore from there from the Old Domingo mine. How it panned out I don't know. I hear the present people have some good concentrating ore. This is the history of the mountains for the last six years. The people that failed would fail anywhere you could put them, and the same can be said of some of the later operators, with this difference—the former worked on cash, the latter on jawbone.

ARDLSON.

TUOLUMNE MINES.

(From Our Special Correspondent)

This week we have to chronicle two rich strikes in virgin ground on the "Mother Lode." The first is at the Black Warrior, Moccasin Creek, on the Tuolumne River. A tunnel has been for the past year entered into the side of the mountain, cross-cutting the formation, which consists of black metallic slate, diabase dykes and quartz veins. At a point 600 feet from the mouth of same, a large, rich ore body has been intersected, proving so far vein matter thirty-five feet wide. Gold shows freely in places—\$10 per ton is a fair estimate of its value as a whole; of course, there are some portions that are rich. The sulphurets are of high grade. From floor of tunnel, backs of over 200 feet are disclosed. This find is of great magnitude—further, it has opened up an almost hitherto unexplored district; all the ground in its vicinity has been located. A "rush has set in, causing much excitement.

THE SANTA HEKNA.

This mine is located south of Juniper mine and southeast of Sullivan Creek, and north of Shawmut and Eagle mines. A tunnel has been entered 230 feet; an ore body, 20 feet in width, has been crosscut. Assays of the pulp run from \$18 to \$20 per ton. Selected samples of sulphurets assay over \$2000 per ton. There are six claims in this group.

East Belt.

THE CONFIDENCE

Struck last week exceedingly rich rock—value full \$50 per ton. Vein large.

LADY WASHINGTON.

A new 10-stamp mill is to be erected at once on this mine—the roller mill not being of sufficient capacity.

THE POTATO PATCH MINE.

This is another rich find, vein 4 feet, rock shows free gold in quantities, the quartz being literally *lousy* with the precious metal. This property has just been sold on a bond for \$50,000, payable in a year; some coin was paid in cash. Active work will be proceeded with at once. Prospect shaft only sunk 60 feet, yet commanded the high price named. The formation is granite.

THE BLACK OAK MINE.

The owners are putting in an electric light plant. The 20-stamp mill started up on the first of this month, after three months' lay off, owing to lack of water, and everything round this splendid mine is in full blast. Mill—cyanide plant. Have nearly completed a very extensive canvass plant, to catch all the finest particles of sulphurets that have escaped the concentrators. This mine is now conceded to have the most perfect gold-saving devices on the coast—it needs it—as it is beyond all question one of the richest mines in the state.

ARGUS.

WASHINGTON.

(From Our Special Correspondent)

SEATTLE, Dec. 12, '97.

The arrival of the steamer, *Portland*, here last spring, with the first large shipment of gold dust, and the news of the rich placer discoveries on the Klondyke caused such an excitement as to greatly retard the development of many of the promising mining properties throughout the state of Washington. Hundreds of men, who had really valuable prospects, could think or talk of nothing but Alaska. Notwithstanding this general excitement and rush to the new Eldorado, there were a few who believed that at home there were fortunes for those who would remain and develop their prospects, although they could not show as high assays in ore, or as large amount of gold per cubic yard; but, with so many advantages in climate, cheap labor and supplies, might in the end pay better than the rich frozen gravel of the Klondyke. Among these few are those who have prospected the placers of Ruby Creek and its tributaries on the upper Skagit River in Whatcom county.

At the mouth of Ruby Creek, where it empties into the Skagit, 68 miles from Hamilton, the terminus of the Seattle and Northern railroad, Frank J. Scougall has acquired a tract of 400 acres of auriferous gravel. He has prospected by shafts and tunnels to such an extent as to estimate that the deposit contains about 15,000,000 cubic yards, and a value of from 25c. to \$1 per yard, with all the advantages of an unlimited supply of free water, that can be brought on the property under any required head, good grade and dump, and in fact, everything required to make the ideal hydraulic mine on a large scale. He has succeeded in interesting people from Minneapolis with sufficient capital to open and equip next season.

A few miles above this property, on Ruby Creek, Mason & Co. have been prospecting this season with satisfactory results, and intend to open up next season.

Above Mason & Co., eight men whipsawed 12,000 feet of lumber and flumed Canyon

Creek, and have made from \$10 to \$12 per day until the water rose, and they were obliged to take the flume out until next season.

Above these men, on Slate Creek, some parties have secured two miles of the creek bed, and have prospected to an extent to enable them to estimate the amount of gravel to be about 750,000 cubic yards, and its value to be at least \$1 per yard. These parties intend to erect a small saw mill in the spring, and equip the property in the most improved manner of river or creek mining.

I have no doubt that this district will next season make such a favorable showing in the production of gold as to call the attention of capital.

PLACER MINER.

Miscellaneous Mining News.

ALASKA.

In the senate at Washington, December 15, a bill was passed directing the secretary of the navy to report upon the subject of a statue to the late Admiral Porter.

A joint resolution for the relief of suffering miners in the Yukon Valley was taken up. An amendment offered by McBride of Oregon for the purchase and importation of reindeer, and the employment of drivers not residents of the U. S. was agreed to.

Cockrell of Missouri criticized the bill because it provided for the gratuitous distribution of relief, which he did not consider necessary. The resolution was referred to the committee on military affairs, which may report tomorrow.

ARIZONA.

F. W. Theis, general superintendent of the Schuylkill mine, in Mohave county, let a contract to run a 100 foot drift on the 230-foot level of his mine the other day.

A car load of ore lies on the dump of the Helmet Peak mine, in Pima county, which it is expected will net over \$6,000 when sent to the smelter. The proceeds will be used in making improvements.

The White Picacho district, in Yavapai county, numbers several good mines, among them one owned by George Barnell, on which thirty inches of \$280 rock has been struck at a depth of 110 feet. The vein at this point was reached by a 75-foot tunnel.

The Grand Canyon Mining and Dredging Company has been organized to work the rich gold bars on the Colorado River, in Mohave county, on a large scale, putting in steam dredges and other machinery necessary to extract the gold from the large gravel deposits owned by the company. Frank L. Barnes, a noted Colorado expert, has made an extensive examination of the bars along the Colorado, and he says there are millions in them.

Last week Mexey Engasses located a number of claims on a small hill eight miles south of the King of Arizona, that promises to equal if not excel any free gold property in the territory. Assays of surface rock taken from all parts of the hill, covering an area of several hundred feet square, show a result of from twenty to forty dollars per ton. Sufficient water supply can be obtained within three miles of the claims, from a small never-failing spring.

CALIFORNIA.

CALAVERAS COUNTY.

Colonel Robinson has purchased the Spanish Bar and Bloomer placer mine, on the Mokelumne River, the property of Howard Rule, and will commence active operations at once. The mines will be worked by the hydraulic elevator system.

KERN COUNTY.

Thomas Bull has taken a bond on a half interest in the Pinmore mine, at Randsburg, from F. W. Clift and F. G. W. Spencer, for \$3000. This property is developing into one of the most important mines in the district.

B. Maginnis and S. J. Montgomery have struck a good ledge on the Annex mine, says the *Randsburg Miner*, and they are now down eighteen feet, on a fine ledge that mills \$47 per ton. The Annex is a wedge lying between the Nancy Hanks and Big Horse, and this vein is the same as that recently opened on those claims. It is a good strong ledge and bids fair to make a mine.

The Redlands mill, property of a Panamint mining failure in 1894, is about to be purchased by the Ashford Mining Company. It is intended to only put up ten stamps for the present. The mill will probably be located at Squaw Springs, four and one-half miles east of Randsburg.

MARIPOSA COUNTY.

From M. L. Rogers, it is learned that the Mount Gaines mine, near Mariposa, which is under bond to George Crocker, is looking very well, with a good prospect for a big mine. Mr. Rogers is the superintendent, and he has a force of twenty-five men at work developing the mine. They are down about 600 feet. In the bottom of the mine there is a five or six foot vein of fine looking rock. In another part of the mine they have a two-foot vein, from which they made a milling test, the ore averaging \$25 per ton from this vein. Mr. Crocker, who is at present in New York, has expressed himself as pleased with the outlook.

RIVERSIDE COUNTY.

James Merchant, the well known miner, has discovered a rich ledge of ore in the Ca-huilla mining district. The ledge is three foot thick and easy to work. Free gold can be seen sticking out all over the quartz. No assays have been made as yet, but the ore is of high grade.

SAN BERNARDINO COUNTY.

One of the richest mining strikes ever made on the desert has come to light within the past day, and it happens that the lucky discoverer is Sam Temple, well known in this city states the *San Bernardino Free Press*. For years the land about Twenty-nine Palms has been known to be rich, but those seeking mines went farther away and over the land in which this strike was made, thousands have wended their way to the new El Dorado, Virginia Dale. The new strike is located about two miles and a half from the mill at Twenty-nine Palms, and small samples of the ore horned out show a long stringer of gold in the spoon, although the rock itself appears devoid of colors. The ledge is three feet wide on the surface, and can be easily traced for 1800 feet on the surface. Present indications are that it is very lasting and rich, and horn assays show as high as \$800 a ton.

The Index Mining Company is making great preparations to resume work. Their mines were shut down some three months ago for repairs, and now they are going to work with renewed energy. J. H. Nickols of Redlands is president, and will push the work of developing with all possible haste. G. L. Cooper is now in San Bernardino looking after the interest of the mines. The property of this company is in the Virginia Dale district, and is thought by many to be the richest mines in that district.

P. M. Livingston has discovered a valuable find in the Morongo mining district, fifty miles northeast of San Bernardino, fourteen miles west of the Rose Mining Company's property. The new mine runs \$160 to the ton, and the indications are that the vein will increase in richness. There is plenty of timber and accessible water for all mining purposes. Mr. Livingston is working a full force of men.

The Rose Mining Company has reached a depth of over 900 feet, and are running a ro-stamp mill day and night. Twenty-five men are kept constantly at work and the mine is proving very rich.—*Free Press*.

COLORADO.

The Colorado Springs *Mining Investor* contains the following interesting items:

The important veins which will be cut at Ouray are the Virginius, Bob Tail, Argentum, Tom Boy and Columbia, while the Senator Beck gold veins, in Silveride Basin, will be opened up and thoroughly developed. The above are the veins which show on the surface, but it is the opinion of the promoters that a goodly number of blind leads and veins will be encountered before the tunnel is completed.

Idaho Springs.

The pending litigation between the Crown Point-Virginia mine and the adjoining claims, over the pitching of one vein into another, has caused the receiver to apply for an order, so that he can stop all work on that property. This refers particularly to the Williams lode, which is in conflict with the Rio Grande. The receiver has been mining and shipping a big tonnage of one of the mills for concentration, but it was not known that the receiver was ready to admit that he was working on questionable ground.

The owners of the Chesapeake property secured the Esseon mine and began sinking a shaft on the vein. The parties from whom they bought the mine found a pinch in the sinking and were very anxious to sell. The new company found that the pinch only lasted for 10 feet, and the streak has opened to three feet of pay ore.

Central City.

Last month's shipments of ore, tailings and concentrates from the Black Hawk depot to the smelters at Denver and Pueblo, aggregated 334 carloads, or 5,344 tons. The shipments of the same month last year counted 269 cars, showing a gain of 69 cars, or 1,040 tons. The October shipments were 315 carloads, showing a gain for November of 19 cars, or over 300 tons. During the year, there was but one month that equalled the month of November—July.

Ward.

It now appears that the new railroad will hardly reach this camp on schedule time. Chief Engineer Frankenberger says that it will be impossible, under the most favorable conditions of weather to get trains into Ward before February, '98. The road is practically complete to Sunset, 12 miles, and trains will be running to that point by Christmas. From this point it is but four miles to Ward by wagon road, though by rail the distance will be about 14 miles—a bit of mountain railroading unsurpassed in the state for indirect travel and twist.

GEORGIA.**Coosa Creek Mining Company,**

Which is composed of C. W. White, George A. Rippey, McDonald Watson, L. L. Kern, J. L. Smith and Lewis J. Osgood, of Princeton, Ind., and John Ewing, C. C. Kuben, of Fort Branch, Ind., and W. A. Hunt, of Young Harris, Towns County, Georgia, has purchased the Hunt mines in Union county and is placing machinery on the property. The capital stock is \$100,000.

IDAHO.

Teams are hauling ore from the Cumberland mine to the upper terminal of the Poorman tramway, near Silver City, for transportation of the electro-cyanide mill for reduction. Fifty or sixty tons will be treated at this time. The developments at the mine are of the most encouraging character, in fact, surpassing the most sanguine expectations of the management.

A contract was let this week for driving 75 feet on the Banner claim in Coffee Gulch, in the vicinity of Silver City.

A general clean-up is being made at the company's mill upon the lot of ore recently reduced from the South Central mine, one of Silver City's noted mines, and we learn that the result is highly satisfactory, both in the grade of the ore and in the percentage saved.

The Wagener aratra, at Silver City, is crushing a 17-ton lot of ore from the Alpine mine, which was recently purchased by the Trade Dollar Company. This ore was extracted prior to the sale, by Messrs. Lewis, Stevens, Jarvis and Davis, leasers, and will give the boys a nice "stake," as it is of high grade.

Horner, Fleming and Reno, who hold a bond on the Lucky Boy mine, near Idaho City, are pushing the lower tunnel, and are now obtaining good prospects. This is important, as pay ore was not expected before running something over two hundred feet further into the hill. It appears that the shoot has greatly lengthened on this level.

Development work on the Mikado mine at Florence, under the supervision of H. Bishop, is making good progress, and the result thus far most encouraging. The tunnel, now 270 feet long, has tapped the lead at the depth of 100, exposing a well-defined vein, carrying about 20 inches of pay ore.

MICHIGAN.

Some 60 feet of drift, on the 20th level of the Central Copper mine, has fallen in as a result of the recent fire. Otherwise but little

damage has been done the mine, and ore is being hoisted as usual.

No. 4 ore dock of the Chicago & Northwestern Railroad at Escanaba was totally destroyed by fire on the night of November 29th. Two men were killed and several injured in trying to control the fire. The flames started in the steamer Nahant, which was lying by the dock. The steamer is a total loss. On the dock were 28 ore cars and 5000 tons of ore which could not be removed. Owing to the growth of shipments from the Mesabi and the low price of ore, there is no probability of the dock being rebuilt. The loss on the steamer is placed at \$40,000 and on the dock at \$150,000.

MISSOURI.

Bunker Hill Mining Company have a lease on 11 acres of the Gramby land at Oronogo, on which it has built a large pumping plant, equipped with two 80 H. P. boilers, a 40 H. P. engine and two 10 inch lift pumps, with which they drain the ground to 160 feet. It has also a large steam concentrating plant that will concentrate 350 tubs of dirt every 9 hours, producing over 6 tons of top price zinc ore each shift.

Aurora Mining Company has three lots on the Company's lease at Oronogo, and has built a fine concentrating plant that will handle 300 tubs of pay dirt a shift, from which it produces from seven to eight tons of high-grade zinc ore. It is drifting at 120 feet on a large face of disseminated zinc ore in hard ground.

The Gladdis Mining Company has leased three lots from the Gramby Company at Oronogo, on which it has built a large steam concentrating plant, that will handle 300 tubs of dirt a shift, from which it is producing from five to eight tons of high-grade zinc ore. It is drifting at 100 feet on a 40 foot face of zinc ore in hard ground.

MONTANA.

L. A. Meyer, who has charge of the Clark's Fork gold dredging boat, reports that the trial run recently had was a success. On account of frost the machinery will not be started again until next spring.

The Golden Gate mine loaded a car of first-class ore in Clancy last week, which was sent to Butte. The ore was secured from a new shaft, sunk a short distance below the old one, and is said to be fair quality.

John Weingart, of Rochester, says that Rochester is enjoying a little mining boom. Joe Clark's new 10 stamp mill has been busy two weeks on custom ores. Placer miners have been drifting in Rochester basin.

N. C. Green and Ed. Preble have leased the Lamar mine at Castle, from Robert W. Peters, and are sinking a 100-foot shaft, expecting to encounter the ore body in about half that distance and commence ore shipments.

The 10-stamp mill of the Montana Boy Consolidated Mining Company, operating the Bradley group of mines near the mouth of Bradley Basin, has closed down, the process employed not making a satisfactory saving of the ore values.—*Western Mining World.*

NEVADA.

Attorney Farrington, of Elko, has attached the Gold Creek property for a claim of \$4,-858 34.

A gold nugget worth \$257 was picked up in Osceola, White Pine county, last week.

The Austin Mining Co. shipped several car loads of high grade ore to Salt Lake City last week.

A sample of gold ore from one of the mines in Western Nye county, assayed by A. T. Atwell, showed results of \$2000 in gold to the ton. This beats Klondyke in more ways than one. There are a number of gold claims situated in the western part of Nye county that are believed to be very valuable properties. All that is lacking is capital to develop them.

There are five teams running between Toano and the Cherry Creek and Eli districts. These teams have kept "on the move" for the past six months with lumber, mining machinery and mine supplies, chiefly for the Star and North Mountain properties, thus justifying the promise made by the officers of the Star mine last spring that "the grass will not be permitted to grow on the trail" between Toano and the "Old Star." This is due to extensive repair work and improvements of a new character, preparatory to working a large force of men in "developing" in the early spring.

It is reported that all other properties in these districts will commence work in earnest about the same time, which promises lively times in these regions, and especially at Cherry Creek. The management assures us of the permanency of the work as far as the Star is concerned.—*Silver State.*

A Silver Peak correspondent of the *Walker Lake Bulletin* says: "I hear that Crittenden is coming back in a few days to do some more work on the Blair mines, and that John W. Mackay will pay this place another visit. If true, it would indicate that the late examination of the property has compelled a favorable report and that the parties interested are more than likely to take hold. If they do, this it will be the best camp in the state."

NEW MEXICO.

A rich strike is reported from Santa Rita, by a prospector and his partners. Samples of the ore assayed 80 ounces gold per ton.

Output of Hillsboro gold mines for the week ending Thursday, Dec. 9th, 1897, as reported for *The Advocate*:

	Tons
Wicks	40
Butler	5
Richmond	5
Happy Jack	5
Snake Group	70
Opportunity	25
Sherman	5
Prosper	5
Eighty five	5
Rex (silver-lead)	5
Total	170

Total output since Jan. 1, 1897—8,814.

About twenty men are at work in Ready Pay gulch, on the new mill and other buildings of the New Mexico Dry Ore Concentrating Company, and in sinking and timbering the main shaft.

At the Llewellyn Cyanide Works, the buildings are well advanced and part of the machinery is in place. The company has also a small force engaged in mining.

In the assessment work now underway on the Iron King mine at Bland, an immense body of ore that will pay to ship to the smelters at a distance without sorting has been struck. The vein has been pronounced by all who have seen it to be the same vein with that of the Lone Star mine, at a much greater depth. The discovery is in a part of the mine which has hitherto been but little prospected and in which hardly any development had been prosecuted. Last week, B. H. Shaw, the custodian of the Iron King and the same company's possessions at Allerton, shipped a lot of samples from the new strike to the owners in Denver. It is generally declared that as soon as these samples are received and tested and a full realization of their value and extent are known by the owners of the Iron King, immediate steps will be taken to complete arrangements for the steady operation of the property. The strike was quite unexpected and proved to be somewhat of a surprise to many, as heretofore work in the mine has been of a nature little calculated to show up its real value and enormity.—*The Herald.*

OREGON.

(Extracts from the Oregon Mining Journal.)

The Columbia mine is running on full time.

The Ballock mine on upper Grave creek is running on full time.

The arastras belonging to Browning & Hanum are shut down at present for repairs, some of the gearing having given way. The mine is looking fine, there now being 24 inches of solid quartz of a very high grade.

Six men are busily engaged getting the Goss mine in readiness for active work. Mr. Goss is equipping the mine with eleven inch pipe and No. 2 giants, and it is expected this mine will add considerably to the bullion output of Southern Oregon.

The Bolt or Green mine in the Galice creek district, which was leased some time ago, by Messrs. Lempke Howard, Coburn and Swearinger, is now being operated by Mr. Lempke, he having bought out the interests of the others in the lease.

Sherington and Abbott have concluded to build an arastras for their mine on upper Grave creek. John Abbott says that he had lately made in the same neighborhood, a new "find" which gave promise of good results.

William Huggins has made a contract with R. A. Jones to drive the long tunnel on the Albany group of mines, in the Mt. Reuben district, 125 feet further. R. C. Turner will assist Mr. Huggins in the work. It will require some four or five months yet to finish this tunnel, as the country rock is very hard.

The Shorty-Hope Co. contemplates building a telephone line between the mine and Ashland.

Strobeck & Perry put a force of men to work this week on their quartz claim on Missouri Flat.

The tunnel at the Oro Fino mine is now in 339 or within 60 feet of the 128-foot level. Of this drift over 200 feet is in good ore. Mr.

Crane, the manager, informs us that the carload of ore lately shipped from the mine to the smelter at Tacoma yielded very satisfactorily.

SOUTH DAKOTA.

Drummer Group of claims is situated about six miles west of Custer, in Custer county, and is owned and operated by a Milwaukee syndicate. The grading is about completed for a ten-stamp mill and the machinery is already on the ground. It is the intention of the company to put in a cyanide plant later; until then, the ore will be treated by amalgamation and the pulp saved for further treatment. The working shaft has been sunk 60 feet, and shows a fine body of ore.

One of the largest smelters in the Black Hills is in course of construction at Edgemont by the Union Hill Company, which is composed mostly of New York capitalists. The company has extensive property at Galena, four miles east of Deadwood, where a 200-stamp mill is also being built. The smelter will be finished by the first of the year. It will be opened for custom trade of the Hills and will be able to handle 200 tons a day.

A full force of men has been put on in the mines of the Buckeye Mining Co., in the Two Bit district, sinking a double compartment shaft. It is thought that the same vein found in the Hardin shaft will be encountered at a depth of 150 to 200 feet. The formation through which the shaft is to go is hard rock, and it is estimated that it will be six months before the vein is encountered.

UTAH.

Gill S. Peyton and his eastern associates purchased a controlling interest in the capital stock of the Overland Mining Co., and as a result of this important deal a large force of men will be put to work in the extensive development of the company's valuable Camp Floyd property soon after the first of the year, and early in the spring a cyanide mill, with at least 100 tons daily capacity, will be erected on the ground.

The holdings of the Overland company, embracing nine full patented claims, is located two and a half miles west of the famous Mercur mine, and is presumably on the same ore belt or zone.—*Salt Lake Herald.*

H. W. Naisbitt, of Ogden, who is interested in mining on Willard hill, north of that place, was in Salt Lake last week. Mr. Naisbitt is a stockholder in the American Mining Co., which is pushing work on its Willard hill property, and the fact that the company has just purchased three more claims adjoining its group would indicate that it had abiding faith in the ultimate outcome of the enterprise.

Mercur Notes.

Raddatz Bros. have purchased the interest of T. J. Gundry in the Copper Queen mine, which joins the Bullion on the south. Raddatz Bros. have been working the Bullion mine for several months under lease and bond.

E. A. Alris, one of the heaviest owners in the Mercur, Geyser-Marion and Northern Light Mines, is still reaching after the good things of this district. Last week added to his holdings a one-sixth interest in the Snow-storm group. The deal was made through

the agency of A. H. Mayne, and the interest acquired was that owned by J. C. Conklin, who is mining at present in Cripple Creek, Colo.

The Golden Bar Mining Co., whose property is in Camp Floyd district, about three miles south of Lewiston canyon, have just let a \$600 contract, Gordon & Stevens, of Tooele, being the successful bidders. Two shifts are at work sinking a shaft at the end of the 100-foot tunnel, where the vein was encountered and good values obtained. This property joins the My Emma group, owned by Captain De Lamar, and has every appearance of becoming a good paying property.

The Leroy Mining and Milling Co., has made arrangements to resume operations on its North Tintic property, the first of the week. The Company feels much encouraged over the showing in its Mercur property.

A carload of galena ore is on the way in from Fish Springs.

The Grand Central was on the market the other day with 22 tons of low grade copper ore.

Another shipment of Uncle Sam ore, 168 tons, was in from Eureka Dec. 11, and sold on controls showing 55.4 per cent lead, 40.2 ounces silver and \$1.20 in gold to the ton.

The Chloride Point Mining Co. held a meeting the afternoon of Dec. 11 and declared a Christmas dividend of 1 cent a share, payable on Dec. 24, to stockholders of record, the transfer books of the company closing on the 20th, to be re-opened on the 27th.

The Eureka Hill Mining Co., of Tintic, received two small hoisting engines last week. One will be placed on the new shaft now being sunk above the mill and the other will go down in the mine for underground work.

A 40-horse-power donkey engine for the Snowflake Mining Co., of Tintic, arrived last week and was taken to the mine. A force has been at work this week laying the pipe to the Centennial-Eureka, from whence the power to operate the plant will come. As soon as it is completed the machinery will be set in place, and active operations will be begun at the mine.

WASHINGTON.

The famous Ruby Creek, over which there was so much excitement 15 years ago promises the state with another rich district. A resident of Burlington was in Mount Vernon last week and brought with him and sold to the Bank a little over \$1,000 dollars in coarse gold taken out of placer claims on Canyon creek, a branch of Ruby creek.

F. W. Weidman of Burlington sold \$1,000 worth of gold dust to the Mount Vernon bank in Anacortes one day last week. The dust came from Canyon creek and is about one-half of the season's clean-up. Mr. Weidman and associates, numbering about eight men, began their work in June. The preliminary work occupied considerable so that the force only had 65 working days. Nevertheless, their clean-up is reported at \$1,900. The largest nugget found was worth \$23.

A cyanide plant is being erected on Sheep creek, about a mile below the O. K. mine, on the Red Mountain railway. The capacity will be 50 tons, and constructed for custom work. There is no company with a high-sounding name back of the enterprise. It is

an Englishman who is the sole proprietor of the plant and he announces that he can treat ores at a cost of \$3.50 per ton, and that ore carrying a value of \$6 per ton will pay to mine. He has had no stock to sell and therefore the enterprise has not been widely heralded. The proprietor has a dam under way, and has bunkhouses erected and is in shape to keep work going all winter.

FOREIGN MINING NEWS

BRITISH COLUMBIA.

The Opulence claim, twelve miles northeast of Fairview, boasts of an ore shoot 30 to 60 feet on a lead that is traced for 1000 feet. The ore is a sulphide, showing considerable native copper, which at a depth of 10 feet assays \$5 in gold and \$95 in copper. Picked specimens have given assays of \$150 in gold, silver and copper, the latter running as high as 65 per cent. Two adjoining claims assay from 3 to 18 per cent in copper.

Mr. W. T. Newman, of Kamloops, reports that assays of specimens submitted to him from the Blue Bird claim at Sicamous run between \$600 and \$700 in gold, with 10 to 17 per cent of copper. The specimens were surface ones, and though, doubtless, selected, seem to augur good possibilities for a place very new to B. C. precious metal mining.

The Hall Mines Dividend.

The first dividend that is about to be paid on the Hall Mines Limited's ordinary stock will be a very respectable one of 9 per cent. Meanwhile, the big blast furnace at the smelter has recommenced work, after closing down for about a fortnight. The new roaster and reverberatory furnaces are being rapidly completed, and the lead furnace is also nearly ready for operation.

Slocan Developments.

The ore houses at the Howard Fraction are full of high grade ore and a shipment will soon be made.

Work on the Fidelity has been resumed, after two weeks' cessation, owing to a great inflow of water.

New York people have bonded the Bachelor group on Twelve Mile for \$30,000.

The tunnel on the Frisco is in 30 feet, and the ledge will probably be struck early next week.

If the snow permits, the Chapleau will make another shipment in a few days to the smelter at Nelson.

Mr. Hugh Sutherland has taken up the bond of \$30,000 on the Silver Nugget group, on Eight Mile, and turned it into a joint stock company, called the Slocan City Mining Co. The principal directors are Mr. Hugh Sutherland, William Mackenzie of Toronto, and D. D. Mann of Montreal. The company is a close corporation.—*B. C. Mining Critic.*

The Enterprise mine in Ten Mile Creek, near New Denver, has resumed operations with a staff of thirty men, and the mine will this month become an active shipper with very large quantities of ore in addition to that got out.

The Idaho mine, in Slocan, has paid another dividend of \$30,000, making \$240,000 to date. Returns have yet to be made and

received in respect of very large quantities of ore in transit to and now in course of treatment at the smelter.

A half share in the Porcupine mine, of Ymir, has just been bought by Messrs. Lloyd & Thompson. It lies between the noted Silver King and the Waneta. The former owners, who needed working capital, retain a half share in the property, which will now, it is stated, be vigorously developed.

The Native Silver Bell, a Slocan mine, has not, as reported, closed down from fear of snow slide accidents. A full force was still working at time of latest reports, though it is possible that the mine may close down for a short time until the snow freezes, should snow-slide possibilities seriously threaten the workers.

Le Roi Smelter.

The Northport smelter is now under roof, and practically finished, with the exception of the calcine furnaces. It will start up some time before the Company's present contract with the Trail smelter is completed, and the Le Roi will then treat all its ore at the Northport smelter. It will be remembered that the erection of this smelter to treat Rossland ores on the other side of the international boundary line at Northport caused the now lapsed agitation in favor of an export duty on Canadian precious metal ore.

MEXICO.

(Extracts from Mexican Trader.)

Durango.

The San Gonzalo Mining Co., whose properties are located in the Avino district, is greatly increasing its output, and the Avino mine is under a contract to sell to an American Company.

Guerrero.

San Nicholas del Oro company has made another shipment of bullion making to date since its recent discovery 2360 ozs. of gold.

Hidalgo.

Mr. L. P. Martin, representing the Mine and Smelter Supply Co., of Denver, Col., has set up at the Guadalupe hacienda a Wilfey concentrator, manufactured by his Company, which is doing most excellent work.

Coahuila.

A large number of companies have been engaged for some time in the development of the rich gold mines in the district of Panuco. The mines are about half way between Soloma, Botella, on the Mexican National Railway, and Monclova, on the Mexican International. One of these companies "La Compañia Arifera," has already paid back the money invested in development and has \$60,000 in the treasury. The ore is shipped to Monterey.

Jalisco.

George E. Ames, Jr., the enterprising representative in Mexico, of the Union Iron Works of San Francisco, Cal., has just made a very successful business trip to this state, having sold during his short stay here mining machinery to the value of \$107,300. He claims to undersell all competitors, and at the same time to supply a superior class of machinery. His success in this state would seem to substantiate these claims.

Mexico.

The American Mining Co., district of El Oro, has secured the services of the well known mining expert, Mathew J. Walsh, to take charge of their property. His technical knowledge and natural administrative ability, combined with a long experience in this country in charge of mining operation, especially fit him for the difficult position he is required to fill, and secures for the Company a guarantee of a successfully operated property. Work on the railroad to this camp has commenced and will be pushed rapidly to completion. It is understood that it is to be operated by electricity.

Guanajuato.

The Valenciana mine situated on the Mother Lode is reported to have found another body of rich ore on an extension of that property. In the San Antone district the Providencia Mining Co. is putting in new machinery and will shortly commence work on a more extensive scale. In Pozos district the Dwight Furness Co. has taken over the San Jose hacienda and will operate it in connection with that of the Ojo de Agua. The Angustias mine paid on the 15th of last month a dividend of \$12.50 per share to complete the pay of the \$72,000 spent in development and expect to pay in the future monthly dividends of \$10.00 per share. The Constancia Mining Company is about to reorganize for the purpose of sinking further on the ledge which has been cut by a shaft at the depth of 100 meters.

Notable among the institutions of this coast, which give instruction in mining and metallurgical subjects, is the B. C. School of Mines at Vancouver. The great specialty of this establishment is the course in field tests of minerals, such as may be required by the prospector when he is far from an assay office. Those who have seen the school thronged with prospectors in the winter months know how this course is appreciated. Some of the best finds of mineral made in the Province during the last two years have been made by pupils of this institution. Among those who have learned their business within its walls are also to be counted many of the most trusted assayers in the Province. There are courses in assaying, chemical analysis, blowpipe work, and instruction in higher chemistry and research work. Lectures are also given in geology. There is a separate department in which assaying is done for the public. The Directors report on mines, often taking with them on their trips pupils of the School, in order to show them practical work in the field. The institution is managed by G. F. Monckton, M. E., F. G. S., who has for eight years been engaged in the management of mines and assay offices, and A. J. Colquhoun, mining engineer, Member of Council of the B. C. Mining Engineers Association, member of the north of England Institution of Mining Engineers, who is well known in California and Mexico, as also in Canada. His headquarters were at Los Angeles for several years, where he had the confidence of those with whom he was brought in touch, and the success of the school is due to the effective manner in which he has conducted the practical course of studies for the pupils.

The California Miners' Association has decided that the jubilee mining exposition, at the Mechanics' Pavilion, San Francisco, shall be open on January 24th.

GENERAL NEWS.

DENVER, COLO., Dec. 1, '97.

The Colorado Iron Works Co. have just closed a contract with the Germania Lead Works, Salt Lake, Utah, for five Bruckner Roasters complete.

They have just received order for a slag equipment complete, including four 44 cubic feet capacity slag trucks, self-dumping, and electric generator, electric locomotive, standards, etc., for handling trucks.

They also report the shipment of four 44 cubic feet capacity, self-dumping slag trucks to the Copper Queen Mining Co., Bisbee, Arizona, and one self-dumping slag truck, of 60 cubic feet capacity, to Wm. A. Clark, Butte, Montana.

Mr. Geo. Wheatley has just returned from the Ord Mountain mining district, which is situated 14 miles from the town of Daggett, Cal., examining a gold property for Los Angeles parties. He reports that the borax mines in the vicinity of Daggett are in full operation, and working on a paying basis. Mr. W. is now engaged to examine a group of mines near Manvel, for a San Francisco company. He expects to leave next week, and after this examination he goes to Arizona, with a view of bonding some large copper and gold mines for Los Angeles and San Francisco parties. Those who wish Mr. Wheatley's services to report on mines in Arizona will please address him, General Delivery, Tucson, for the next 30 days.

From information furnished by a reliable source, we learn that the price of antimony ore, which carries 60 per cent antimony, is only worth \$38.40 per ton, and not \$90.00, as one of our correspondents stated in his last letter.

Antimony is one of the most expensive minerals to work. It has to be handled three distinct times by expert mechanics, none of whom will touch it, as it is a dangerous and poisonous article to handle, for less than \$4 per day.

We have received a copy of a *Map of Alaska and the Northwest Territory*, marking all the gold fields with yellow and all the principal cities with a red dot. It also gives very valuable information as to the route from San Francisco, the number of miles from San Francisco to St. Michaels or Juneau and from these points to important gold mining sections. This map is 16x24 inches, and is made in the scale of 100 statute miles to one inch. Henry G. Laughren, surveyor and mining engineer of San Francisco, Cal., is the publisher. The price is fifty cents per copy, and is well worth it to prospectors and mining men contemplating visiting Alaska or the Northwest Territory.

Baker & Company, platinum refiners of Newark, N. J., have issued an attractive little pamphlet entitled *Platinum*. It is a very handy little booklet — a treatise on platinum containing a great deal of valuable information, giving the source of supply, identification and separation of the ore, facts of interest to prospectors and miners. The copy we have is printed on the very best of glazed book paper, bound with heavy paper back, and contains sixteen pages in all. It illustrates their works, and a platinum nugget full size, which is undoubtedly the largest ever found on this continent. It measures approximately three by two and three quarters inches and weighs nearly two pounds.

Malleable Iron Buckets.

We illustrate herewith several of the various malleable iron buckets manufactured by The Jeffrey Manufacturing Company of Columbus Ohio, with Branch at Denver, Colo.

These types were brought out to meet the special requirements in Concentrating and Stamping Works and will be of special interest for the reason that they are used in a large number of up-to-date plants.



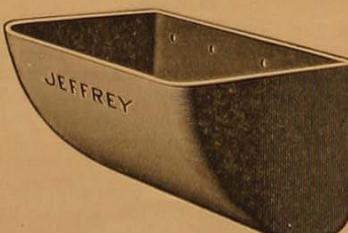
TYPE "A"

Type "A" shows the standard malleable bucket with renewable steel bands.



TYPE "B"

Type "B" special bucket with reinforced heavy front edge and back.



TYPE "C"

Type "C" large body bucket.

The "A" renewable steel band bucket has found favor in the hands of practical men for the reason that when the steel band becomes worn it can be re-placed.

Style "B" bucket is an extra heavy pattern and in the handling of ores where the water is bad this pattern has been found to wear evenly.

Style "C" was specially gotten up for handling water in connection with ores, and is of a shape to insure a large capacity.

These buckets are carried in stock by The Jeffrey Manufacturing Company, who are in position to fill large and small orders promptly. They also manufacture to order buckets of other types, and will be pleased to quote prices on any special forms that may be called for.

Among the important manufacturing enterprises on the Pacific Coast, none rank higher than the Stauffer Chemical Company, whose extensive plant at Stege, California, is running full time. The Company there purchase iron pyrites for manufacturing sulphuric acid. They supply the California Vigorite Powder Works, which are located near by, with the acids needed in the manufacture of powder; also, another plant of the Stauffer Chemical

Company is at North Beach, where cream tartar, tartaric acid, soda, glauber saltz, sulphur and other important commercial articles are made. At the third works of the Company, at Utah and Alameda streets, in San Francisco, California, nitric and muriatic acids, boracic acid, soldering fluid, carbon bisulphide and many other things are manufactured. The Stauffer Chemical Company have special facilities for supplying the mining trade, as they can guarantee everything they manufacture.

The Chapman Smelting Works Company, of San Francisco, California, has incorporated for \$100,000, all of which has been subscribed. The incorporators are A. A. Solomon, C. Solomon, jr., C. Solomon, sr., G. H. Brooker, I. Muraski. The president of the company is J. G. Hoyt; vice-president and general manager, C. Solomon, jr.; secretary, R. H. Swayne; treasurer, American Bank & Trust Co. G. H. Brooker, whose work took the prize over all competitors at the Columbian Exposition, when he was in the employ of the United States' Star people, is the superintendent. These are the only people on the Pacific Coast who buy and sell ores and refine antimony. They are erecting the largest plant ever attempted in the United States, at 9th and Division streets, San Francisco, and are ready to buy any quantity of antimony ore, and pay for it immediately upon arrival and inspection in San Francisco.

TEMESCAL TIN DEPOSITS

In the July number of the *American Journal of Science*, H. W. Fairbanks has two papers, the first describing a case of metamorphism on Black Mountain, of the El Paso range, a spur of the Sierra Nevada mountains, extending easterly into the Mojave desert. This is illustrated by a figure showing the diabase dike, with a slaty zone adjoining of hard, firm rock, into which the soft tufa has been baked. The second paper describes the tin deposits at Temescal, California. The tin deposits here lie nearly in the center of a rude semi-circular area of granite, about two miles in diameter, and connected on the east with the great body of similar rock extending indefinitely in that direction. The sedimentary rocks along the edge of the granite area consist of quartzite, mica schist and conglomerate of unknown age. A part, at least, of the slates and limestones of the Santa Ana range are carboniferous. The semi-circular area of granite and portions of the adjoining porphyry has been fissured in a general northeast and southwest direction along almost innumerable lines, and a black vein matter deposited. The veins are generally small, varying from one-fourth to a few inches in thickness, but in the case of the main tin-bearing vein, an enormous size is reached at Cajalco Hill. As the hill is approached the veins become larger and finally culminate in this elevation, which is about 300x250 feet in diameter at the base. The veinstone of which it is mostly composed rises in prominent and bold croppings. With one or two unimportant exceptions, the material of which this, as well as the other veins is formed, consists wholly of tourmaline and quartz, with which the tin ores are locally associated. The larger veins, and the Cajalco in particular, are very irregular in size, sometimes appearing to be mere bunches in the granite. A few hundred feet northeast of the hill the vein has narrowed to six or eight feet, and it is here that the large body

of tin was first discovered and the main shafts sunk. A slide prepared from one of the smaller veins, which in the hand specimen appeared to consist wholly of tourmaline, showed bunches of tourmaline crystals radially arranged and imbedded in interlocking quartz grains.

The Murray Iron Works Co., of Burlington, Iowa, has very kindly favored us with a copy of their Catalogue No. 29, illustrating ice and refrigerating machines, Standard Sioux Corliss engines, horizontal tubular boilers, also vertical tubular boilers, the improved Marsh steam pump, and Standard feed-water heaters, etc. It is a neat pamphlet of fifty pages printed on fine glazed paper with a heavy paper cover. The Murray Iron Works Co. has been actively engaged in the building of various forms of machinery for the past thirty years. Their plant, consisting of iron and brass foundries, machine and engine shops, boiler works and forges, is one of the largest in the country. It is equipped with hydraulic, pneumatic and electrical appliances, and stands easily in the front rank of modern iron working establishments. The company will be pleased to forward to all who are interested in machinery a copy of this catalogue upon application.

R. L. Ogden, editor of the mining column of the San Francisco *Examiner* writes as follows:

"As evidence that some people make money in mining, we give the list of the fortunate ones, which by no means covers the number, merely the prominent names generally known to the community: A. S. Bigelow, president of the Boston and Montana, has made \$5,000,000; Herbert L. Terrell, 80 Broadway, New York, \$3,000,000; Phelps, Dodge & Co., one of the largest metal houses in the world, have made in the last few years \$10,000,000; A. Foster Higgins, president of the Mexican Northern Railway, has made \$1,000,000 out of Mexican mines; W. R. Garnee, ex-Mayor of Chicago, \$500,000; John L. Blair, sometimes called the fourth richest man in the United States, has made \$10,000,000 in mining in Candelaria, Nevada, Montana and Idaho. Theodore Birdell, one of the pioneers of Leadville, \$750,000; John E. Seales, the sugar king, has a son-in-law in Colorado who got him into a good thing which cost him \$2,000,000. Then he dropped mining and fell back on sugar. W. F. Havemeyer, a sugar king also, made \$1,000,000 of the Cimarron mine, Telluride, Colo. Oliver H. Payne, son of Senator Payne, has made \$3,000,000 in Mexican mines. Anton Ellers, president of the Colorado Smelting Company, made out of the Smuggler mine, Colorado, \$500,000. D. O. Mills is credited with \$15,000,000 from mines. Leversohn Brothers, owners of the Old Dominion and the Boston and Montana copper mines, \$2,500,000. Jas. Shields, father-in-law of Marcus Daly, who was a laborer when he married, \$500,000, and Daly himself several millions. W. H. Harriman, president of the Illinois Central, \$1,000,000 out of Golden Reward, South Dakota. W. A. Clark of Montana, \$10,000,000 out of Montana mines and United Verde, Arizona' copper mine, which pays \$1,500,000 per annum in dividends, and so on—not noticing the several hundred men who have made from \$100,000 to \$500,000. What other business can be named that has paid so many aggregate millions? And yet there are people who say that mining is a fraud and a delusion."

In 1896 Colorado produced 9000 tons of manganese iron; Michigan and Wisconsin combined produced 110,317 tons and New Jersey 35,655 tons, while a few other states produce small quantities. The Colorado ore was practically all used by the Colorado Fuel and Iron Co. at Pueblo. The present year Colorado will show a great increase, as many thousand tons have been shipped to the Illinois Steel Works at Chicago, and next year bids fair to see this state take the lead in manganese production. Another contract has just been closed with the Illinois Steel Works for 40,000 tons, which, with the amount used at Pueblo, should exceed the ore mined in any state in the Union. The annual consumption in the United States is about 200,000 tons. In purchasing manganese ore, tests are made for silica and phosphorus. If it carries to exceed 8 per cent. silica a charge is made of 15 cents for each per cent. in excess. If it carries to exceed one-tenth of a per cent. phosphorus, a charge of 1 cent is made for each two one-hundredths of 1 per cent. The presence of sulphur, silica and phosphorus is objectionable in this as it is in all iron ore.—*The Mining Industry Review.*

Copper Telegraph Wires.

Some years ago attention was called to the fact that the Western Union Telegraph Co. was using copper wire exclusively on new construction and renewals on its principal lines. The company has recently completed a line of copper wire from New York to San Francisco, the longest heavy copper wire for telegraphy in the world. The wire is strung between San Francisco and Ogden along the Southern Pacific and from Ogden to Omaha along the Union Pacific.

A New Process for the Extraction of Nickel.

Thos. Storer, of Glasgow, in English patent 22,721, October 13, 1896, proposes a new process for the treatment of New Caledonian ores. After being finely ground, the ore is treated in a closed vessel with a solution of ferric chloride at a temperature of 370° Fahr. for five to eight hours. The solution of nickel chloride is then run off, any traces of ferrous salt thrown down with chalk, and the nickel recovered in any suitable way. The insoluble ferric oxide is washed, and forms a red pigment. Ores containing 5 to 8 per cent. of nickel require about 1,700 pounds of chloride to the ton.

PERSONAL NEWS ITEMS

MR. J. G. GARETSON of Los Angeles, Cal., who with others went to State of Autoquia, Republic of Columbia, South America, last February, and who returned soon after, will leave again for the same locality, Dec. 6th, with four other gentlemen. They intend to work the placer gold mines there which are reported to be rich.

J. M. LIPPINCOTT of Silverton, Colorado, the well-known mining man, has been in Rosa Bingham Co., Idaho, on a prospecting trip and is enjoying himself immensely.

G. PARKER, well known in Los Angeles, who has had charge of the Greenleaf mine in the Holcomb valley, San Bernardino county, has resigned and will manage the ten-stamp mill at Alamo, Lower California, Mexico, for Davis & Hartzell, the owners of the Viznaga mine.

Manager of the Swansea at Tintic, Utah, T. Geddis, has just left for Denver, Colorado.

MR. WILLIAM A. FARRISH, of Denver, is in San Francisco, Cal.

J. LONERGAN of Los Angeles, is examining properties twenty miles from Salton, Riverside county, Cal., for New York parties in the Mesquite district to report to his principals. He will return in a few days.

MR. HENRY W. EDWARDS, mining engineer and metallurgist, passed through New York this week on his way to Colorado, where he expects to examine copper mines for a London syndicate. Mr. Edwards was recently in New Caledonia, where on his reports his clients have purchased important nickel, copper and cobalt bearing manganese deposits.

J. HAMBURG of Kansas City, whose family is spending the winter in Los Angeles, is heavily interested in the Montezuma mine, twenty-five miles from Bisbee, Ariz.

H. E. ARMITAGE, the superintendent of the Sun Dance group of mines near Prescott, Arizona, has resigned as superintendent.

MR. J. J. GALLAGHER, of Atlanta, is examining mining property in Arizona for a New York syndicate.

DR. C. EDGAR SMITH left Los Angeles, Cal., for Acton, Cal., last week, to prosecute work on his Black Cat group of mines, and arrange for active development work. The mill will be in operation by Jan. 1, and the cyanide process is to be used in connection.

CAPT. G. H. NIHELL, a noted mining man in Nevada City, has just returned from San Francisco, Cal.

A. F. HOLDEN, manager of the Old Jordan and Galena, Bingman, Utah, has returned from an extended eastern trip and will look after his properties.

P. W. MCGRATH, of Los Angeles, has three claims on McCoy mountain in the Iron district, in Riverside county, twenty-five miles from the Colorado river, which average, on running assays, 30 per cent. copper and \$62 in gold.

H. A. KELLER, M. E., who has been in Butte, Montana, for some time past, is on his way to his home in San Francisco.

PROF. GEO. C. TILDEN, of London, formerly of the School of Assaying, at Golden, Colo., has recovered from a severe illness at San Francisco, and is now on his way to the East.

J. H. MARCOM, superintendent of The Colorado Iron Works Co., of Denver, has been visiting Salt Lake City, Utah.

J. A. YEATMAN, who has just returned from a trip to Arizona, is representing Farke & Lacy Co., of San Francisco. Mr. Yeatman reports a great deal of mining machinery going into Arizona and also going into Sonora, Mexico, and says his firm is going to pull for that trade.

MR. EDWARD P. RICKER, of Poland Springs, Me., has been at Silver Cliff, Colo., to examine the Jay Gould mine in which he is interested.

MR. HENRY BRATNOBER is said to be on his way to Alaska with a party of surveyors to lay out a route for a railway through White's Pass to Dawson City, the first connection to be at Lake Linderman or Lake Bennett.

CHARLES FORD has had charge of the erection of the Chloride Point mill in Utah.

MR. JOHN A. PEACOCK, one of the owners of the El Rosario gold mines in Southwestern Chihuahua, Mex., is back in Fort Worth, Tex., from an extended trip to that country.

MAJOR J. E. JACKSON, the genial Salt Lake representative of the Consolidated Kansas City Smelting & Refining Co., returned last week from Denver, Leadville, and other Colorado points.

T. H. OXNAM, the superintendent of the De Lamar mine, Nevada, is in Salt Lake City, Utah.

N. J. SHARP, of Challis, Idaho, was in Salt Lake City, Utah.

WILLIAM McQUEEN has accepted a position with the Treasure Hill Mining Co. as superintendent of its Tintic mines.

L. W. MORGAN, the Los Angeles assayer, is at Randsburg examining properties for a Los Angeles and Chicago syndicate which, if up to requirements, will close negotiations now in progress.

A. BIND, the noted mining man of Placerville, Cal., made a trip to San Francisco, Cal., last week.

PROF. GEORGE W. MAYNARD, mining engineer who has been for several months in Nevada examining mines for prominent Eastern capitalists has returned to New York.

H. R. ELLIS, of San Francisco, the inventor and patentee of the Ellis Concentrator is in Salt Lake City, from Tuscarora, Nev., where he is putting in eight Ellis concentrators at the new Dutra mine.

THE MARKETS.

NEW YORK, Dec. 11th, 1897

The following are the Silver, Copper and Lead quotations for the last two weeks:

	SILVER	COPPER	LEAD
Nov. 29	50	10 65	3 50
" 30	50 1/2	10 65	3 50
Dec. 1	50 1/2	10 65	3 50
" 2	50 1/2	10 75	3 50
" 3	50 1/2	10 75	3 50
" 4	50 1/2	10 80	3 50
" 6	60	10 85	3 50
" 7	50 1/2	10 87 1/2	3 50
" 8	50 1/2	10 87 1/2	3 50
" 9	58	10 85	3 50
" 10	58	10 85	3 50
" 11	58 1/2	10 85	3 50
" —	—	—	—

Silver has been in fair request and the chances of the price being maintained through December were decidedly good until the action of the India Council concluding to renew sale of drafts next week. This bit of news took the silver buyers out of the market and silver fell to 58c. Nominal market closes with unsatisfied enquiries at this figure.

The United States Assay Office reports the total receipts of silver at 214,000 ozs. for the last two weeks.

COPPER.

The New York market closed quiet but firm last week at 10.87 1/2 @ 11c. for spot and December Lake ingot; casting copper, in car lots, M. A., 10.62 1/2; Orford, 10.75c.; other grades; electrolytic, 10.75 @ 10.87 1/2c.

LEAD

This metal is dull in movement, but fairly firm in price. The quotations were \$3.55.

SPELTER

The market for spelter is somewhat stronger than at last report with \$3.80 as an approximate.

The St. Louis market is quoted at \$3.80 and the New York market at \$4.95.

ANTIMONY.

The quotations are 7% @ 7 1/2 for Cookson's; 7 1/2 @ 7 1/2c. for Hallett's; 7 1/2c. for Japanese and 7 1/2c. for U. S. Star.

NICKEL.

Business continues moderate and no change in prices can be reported.

New York quotations for ton lots are 33 1/2c. and 36c. per pound and for smaller orders 35 1/2c. and 38c.

TIN

The New York market closed quiet last week. Closing prices were \$13.65 and \$13.80 for spot and December.

PLATINUM.

Prices are firm at \$14 and \$15 per oz., New York. For chemical ware, best hammered metal, Messrs. Eimer & Amend of New York furnish the following quotations, the prices given below being respectively for orders of over 250 grams; for orders of over 100 and less than 250 grams and for orders of less than 100 grams. Crucibles and dishes, 57c., 58c. and 59c. per gram. Wire and foil are 55c., 56c. and 57c. per gram.

QUICKSILVER.

The New York quotation has been reduced \$1.25 and is now \$37.25 per flask. San Francisco quotations are \$39 for domestic consumption.

POWDER.

The market is steady at San Francisco with no change in quotations.

For Hercules No. 1, from 11 1/4c. to 17 1/4c., according to strength and quantity. No. 2, from 9c. to 11c., according to strength and quantity.

COKE.

The Coke market is steady with a fair demand reported.

The market is quoted as follows at San Francisco:

English, to load.....—@—
" spot in bulk.....11 00 @—
" in sacks.....12 00 @—

Cumberland.....10 00 @—

BORAX.

The San Francisco market in Borax is fairly firm.

Refined, in carload lots, in barrels.....5 1/2
Refined, in carload lots in sacks.....5 1/2
Powdered, in car lots.....5 1/2
Concentrated, in car lots.....5 1/2

THE MINOR METALS.

Quotations are given below for New York delivery:

Aluminum, No. 1, 98 per cent. ingots, per lb.	34@4c
No. 2, 94 " " "	31@3 1/4c
Rolled sheets, " " "	38c. up
Alum.—Nickel, " " "	3 1/2@3 1/4c
Bismuth, per lb.	\$1.30@1 1/2c
Phosphorus, per lb.	45@5c
Tungsten, per lb.	70c
Tungstic acid,	45c
Ferro-tungsten, 60 per cent.	60c

CHEMICALS.

There has been no change in business during the week, and deliveries have been principally on contracts. However, we note some further contracts taken for 1898 delivery.

Quotations, generally, are as follows:

CAUSTIC SODA.

Quotations for caustic soda are \$2.10 to \$2.20 per 100 pounds.

ALKALI.

Domestic, 58 per cent., 65c. for 50 ton lots and over and 70c. and 80c. for smaller quantities. 48 per cent., \$1.00 and \$1.20 for jobbing lots.

CARBONATED SODA ASH.

48 per cent., 90c and 95c. per 100 lbs. 58 per cent.

BI-CARBONATE OF SODA.

English, \$2.00 and \$2.25 per lb. American, bulk \$2.00 and \$2.25 per 100 lbs., according to brand.

SAL-SODA.

English, 67 1/2c. and 75c. per 100 lbs. American, 62 1/2c. and 65c. per 100 lbs.

CHLORATE OF POTASH.

\$9.50 and \$9.75 per 100 lbs.

ACIDS.

Business has been rather active and prices have been fixed for delivery over 1898.

Prices are per 100 lbs. in New York and vicinity in lots of 50 carboys or over. Quotations are as follows: Acetic acid, commercial No. 8 \$1.50 @ \$2.00; redistilled, 28 per cent., \$2.00 @ \$2.15; Muriatic acid, 18 per cent., 90 @ \$1.50, 20@ \$1.75; 22%, \$1 1/2 @ \$2, according to make and quantity. Nitric acid, 36%, \$3.25 @ \$4.1/2; 40%, \$3.75 @ \$4.75; 42%, \$4.1/2 @ \$5.00. Oxalic acid, \$7.25 ex-dock and \$7.50 ex-store. Mixed acids, according to mixture. Sulphuric acid, 66 per cent., \$100 @ \$1.75. Chamber acid, 50% \$8 per ton at factory. Blue Vitriol, \$3.75 @ \$4.25 according to grade and order.

BRIMSTONE.

Business is of a routine character and prices are \$21.50 @ \$21.75 per ton for best unmixed seconds on spot, and \$20.75 @ \$21 for shipment; thirds \$1 less. Arrivals at New York aggregated 2,510 tons from Giregenti, Sicily; at Baltimore, 2,400 tons. We also note that there were arrivals at New York from Huvela, Spain, with 1,480 tons crushed and 257 tons lump sulphur ore (pyrites).

MURIATE OF POTASH.

We quote New York and Boston, 1.75 @ \$1.78c. Philadelphia and Norfolk, 1.76 @ 1.79 1/2c.; Charleston, Savannah, Wilmington and New Orleans, for 80@85 per cent. basis of 80 per cent., \$1.78 1/2 @ \$1.81c in lots of 50 tons and upward.

KAINTIT.

Invoice weights as taken at port of shipment per ton of 2,240 lbs. testing 12.4 per cent. actual potash, equivalent to 23 per cent. sulphate of potash, \$8.80 @ \$8.90.

NITRATE OF SODA.

Trade continues quiet and quotations are \$1.65 per 100 lbs. for spot and \$1.55 @ \$1.60 for futures.

FINANCIAL NOTES.

The statement of the United States Treasury, on Thursday, December 9th, shows balances in excess of outstanding certificates as below, comparison being made with the statement for the corresponding date last week:

	Dec. 2	Dec. 9	Changes,
Gold.....	\$17,396,039	\$18,313,412 L	\$917,373
Silver.....	15,660,600	15,390,382 D	266,118
Legal Tenders.....	36,074,249	37,193,704 L	1,116,455
Treasury Notes, etc.....	3,110,070	3,159,107 D	49,037
Totals.....	\$212,146,858	\$212,023,605 D	\$123,263

Treasury Deposits with national banks amounted to \$46,970,012, an increase of \$8,558,595 during the week.

The estimate of money in the United States on December 1st, as prepared by the Treasury Department, is as follows:

	In circulation,	In Treas'y.	Totals,
Gold coin.....	\$54,494,748	\$151,965,892	\$696,460,610
Std's silver d'l'res 61,280,761	892,933,031	454,213,792	
Std's silver 1/2's 64,829,015	11,191,630	76,020,675	
Bsd'ry silver.....	36,725,404	1,548,740	38,274,149
Silver certif.....	373,298,967	11,664,537	384,963,504
Tr's y'n't's 90.....104,676,398	3,116,882	107,792,280	
U.S. notes.....262,183,00	54,498,016	346,681,016	
C'rryng certif.....48,640,000	250,000	48,890,500	
N't'l bank notes.....224,956,210	4,678,007	229,684,217	
Totals.....	\$1,721,081,533	\$661,346,735	\$2,388,931,217

The total amount in circulation shows an increase of \$14,351,634 over that reported on November 1st. The estimated circulation per capita is \$23.39.

Exports of specie from San Francisco in October were \$6,899,181. The amounts and descriptions of specie shipped in the first 10 months of the year compare as follows:

	1896	1897
Silver bars.....	\$4,712,378	\$4,653,952
Mexican dollars.....	4,027,958	8,176,062
Peru sols.....	122,867	85,165
Silver coin.....	651,025	243,659
Gold bars.....	42,467	
Gold coin.....	11,422,789	23,491,953
Gold dust.....	4,120	2,695
Total.....	\$21,583,528	\$6,953,386

The destinations of above shipments were as follows this year: Hong Kong, \$7,469,389; Shanghai, \$2,263,030; Japan, \$1,742,270; India, \$1,485,988; Honolulu, \$415,522; Tahiti, \$3,300; Central America, \$21,200; Mexico, \$760; New York, \$23,251,927. A large part of the increase this year was in coin shipped to New York.

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Los Angeles, Cal.

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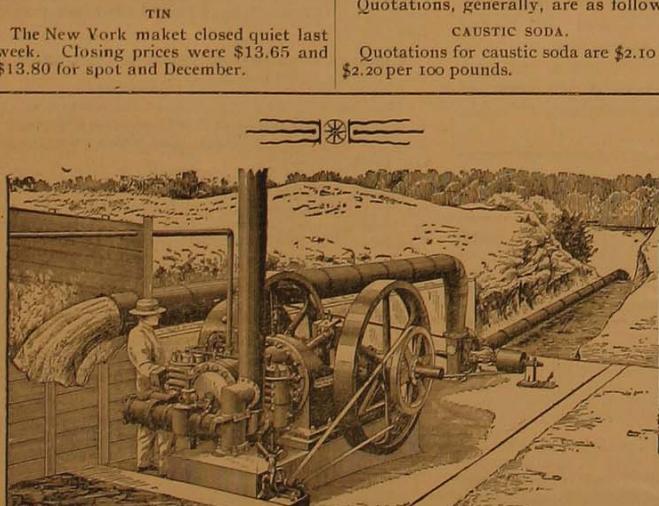
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Gold and Silver Exports and Imports, New York.

For the week ending December 10th, 1897, and for years from January 1st, 1897, 1896, 1895, 1894:

Period	Gold	Silver	Exports	Imports	Exports	Imports
Week	\$31,000		\$46,877		\$630,600	\$107,920
1897	29,761,631		43,170,454		14,214,855	2,961,722
1896	40,763,863		76,616,225		35,424,189	8,889,820
1895	66,006,652		28,5,9,947		36,169,788	1,995,342
1894	90,426,404		16,386,437		32,051,026	1,665,888

The gold exported for the week went to London and the West Indies; the silver went chiefly to London. The gold and silver imported came from Central and South America and the West Indies.

Gold and Silver Exports and Imports

At all United States ports, October, 1897, and years from January 1st, 1897 and 1896:

	Coin and Bullion Exp.	In Ores Imp.	Exp.	Imp.
Gold—				
Oct.	\$3,016	\$11,340,786	\$ 1,640	\$434,612
1897	32,900,249	24,413,522	97,588	3,970,484
1896	57,218,014	92,849,935	139,040	1,592,976
Silver—				
Oct.	5,225,342	1,691,661	95	1,592,762
1897	47,572,680	9,472,707	259,425	17,691,978
1896	57,269,880	9,448,077	748,888	14,730,938

This statement includes the exports and imports at all United States ports, the figures being furnished by the Bureau of Statistics of the Treasury Department.

MINING STOCK MARKETS.

SALT LAKE CITY, Dec. 11, '97.

The call of the mining exchange was attended with a fair showing of business, although not as large in volume as on the previous day, but the interest taken in the transactions of the day was just as keen, and it is believed that business from this time on during the winter will hold up well and that dealings in the pit will be accompanied by a number of surprises. At the first call a block of Bullion Beck changed hands at \$5.90. Sales were made immediately after at \$5.85 and \$5.80, while at the close the stock was offered at \$5.70. Geyser-Marion disclosed strong upward tendencies and transfers were registered at 97½ cents, and the stock was very firm at this figure at the close with offerings at \$1. Mammoth was weak and sluggish, and so was Mercur, while the Northern Light was stationary.

In the unlisted stocks Chloride Point was in active demand, and while a few

transfers were recorded at near the figures of the previous day and 600 shares touched the 45-cent mark, it was wanted at the close at 45½ cents, with offerings at 46. Swansea was in fair demand and at a slight advance over the quotations of the previous day. South Swansea drew out active bidding, but holders stood firm, and an inquiry at \$1.45 failed to draw out any of the stock. Buckeye figured in the transactions of the day and registered transfers at 27½ cents.

LOS ANGELES, CAL., Dec. 14, '97.

The market on the Los Angeles Mining and Stock Exchange has been rather encouraging the last week. Among the properties most sought for is the Mohawk-Acton, there having been sold some 65,000 shares, at a price aggregating \$8.50. East Amargosa is looking up a little and very encouraging reports come in from the property. Brown Dake does not seem to take very well. Reports are very encouraging from the Pacific Consolidated of Red Rock. Shares of this stock are selling at \$9 per thousand. Showing at the Rand Mountain Company's property is very good, and development work is being vigorously pushed upon the mine. Laurel Mountain stock are rather slow and unsteady, but it is expected that an important change for the better will soon be made.

Of the unlisted stocks that are active, Val Verde is the principal, having made a number of good sales. The market has been very unsteady for some time, but is now making a good showing. At a recent meeting of the Board of Directors, it was decided to establish a mineral exhibit. A number of well known mining men have been appointed as a committee to secure a good cabinet to be placed on the floor of the Exchange Hall.

SAN FRANCISCO, Dec. 12, '97.

It is stated that the returns of low-grade ore, milled by the Gould & Curry Co., have proved so satisfactory as to induce a test of 2000 tons. If this should prove satisfactory, it is expected that other companies will extract and mill low-grade ore, of which there are millions of tons running from \$8 to \$16 per ton, mostly gold, particularly in Con. Imperial and neighboring mines.

From the Comstock mines official letters fail to give any news of any importance, but private advices are more en-

couraging, which is in direct conflict with bear points put out on the street by interested parties. It is the belief in well-informed circles that important delayed work will be started next year, probably toward spring. Some of this work was reported by experts appointed for the purpose. These reports were not made public, simply because members of the moneyed pool changed their minds and thought the time was not favorable for a bull campaign. In Utah they are still drifting in a northwesterly course, with no change reported. They continue to drift north on the 175-foot level in Andes. When exploiting work is commenced good results are looked for. In Sierra Nevada work is confined to three points—the Layton tunnel level, the 900-foot level and running the new tunnel. On the former level they are blocking out the ground, and on the 900-foot level they are drifting north. In Union the west cross drift reported last week has been extended 16 feet, making a total distance at last advices of 43 feet. In Mexican they are crossdrifting east on the 1000-foot. The total length is 500 feet. They are out about 650 feet in the west crossdrift on the 1000-foot level of Ophir.

ROSSLAND, B. C., Dec. 10, '97.

The success of the Fern mine and expected early success of other free milling gold companies in our province mean much to British Columbia, as nothing so greatly attracts the British mining investor for free milling gold mining.

The great gold-producing centre in Rossland, where splendid ore bodies of profitable gold-copper smelting ore are being exposed as development work advances, and the conditions of this camp are this year much ahead of those of last year. Underground development is beginning to assume very considerable extent and importance, and as this work proceeds prospects greatly improve, leaving it simply a matter of time, work and capital when the production will be much greater.

The main shaft of the Le Roi mine is now being extended to the 700-foot level, work which will be completed about the end of January. The extended shaft will then be the deepest vertical opening in the Rossland camp.

Mr. J. McCrae, of the Hamilton-Rossland Gold Mining Co., has bought

out at a sheriff's sale five claims on Ford Mountain, near Nelson, and known as the Delight, Woodstock, Calgary, Balmoral and Atlantic. Some \$3,000 have been expended on the property, and the purchaser believes that he has bought solid value. Some of the surface ore from the group has, it is stated, assayed up to \$60 a ton.

NEW YORK, Dec. 8, '97.

Transactions have been heavy, with wide fluctuations, especially in the Nevada stocks. In the case of Consolidated California the price jumped from \$1.05 on Saturday last to \$1.40 on December 6th.

Of the Colorado stocks Anchorage-Leland dropped from \$1.05 on November 27th to 99c. this week. Elkton advanced from 87c. to 77½c. but declined again to 73c. Golden Fleece opened at 53c., and receded to 49c. Iron Silver ruled steady at 30c. Isabella sold 28½c. to 29c. The company reports a net loss of \$5,845 in its operations during November. The annual meeting will be held in January next. Mount Rosa hovered between 10c. and 11c. during the week. Mr. F. H. Pettingell, of Colorado Springs, has solicited proxies in the East for the purpose of effecting a change in the management of this company at the annual meeting on January 11, '98. Portland fluctuated between 65c. and 71c.

The California stocks were featureless. Standard sold at \$1.65 to \$1.70, and Brunswick at 12c.

The discouraging advices recently received from the Klondyke gold fields, and given in the *Engineering and Mining Journal*, have had a depressing effect on the so-called "Klondyke" stocks, says that journal. Already the Northwest Mining and Trading Company, which was organized last summer, with a capital of \$5,000,000, has closed its offices in New York, and is refunding the subscription money. Another concern to stop is the Yukon-Cariboo British Columbia Gold Mining and Developing Company, at the head of which was J. Edward Adicks.

There were sold at auction this week 360 shares of the Batopilas Mining Company, of Mexico, at 87c. per share; 25 shares of the preferred stock of the Maryland Coal Company at \$45.25; 10 shares of the preferred stock of the Taylor Iron and Steel Company, at \$80 per share.

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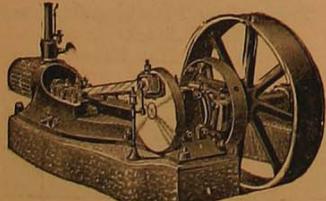
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INCORPORATED MINES PAYING DIVIDENDS.

NAMES OF MINES	LOCATION	No. of Shares	Capital Stock	Par Value	Amount of last Dividend	Date of Last Dividend	Total Amount Paid in Dividends	Kind of Mineral Produced
Aetna Cons.	California	100,000	\$ 500,000	\$ 5	\$ 10	Sept 1897	\$ 110,000	Q.
Adams	Colorado	150,000	1,500,000	10	.04	October 1895	693,500	S, L, C.
Alaska, Treadwell	Alaska	200,000	5,000,000	25	35½	October, 1897	3,250,000	G.
Alaska Mexican	Alaska	200,000	1,000,000	5	10	Oct., 1897	297,031	G.
Alice	Montana	400,000	10,000,000	25	03	Oct 1897	1,055,000	G. S.
Anaconda	Montana	1,200,000	30,000,000	25	1 25	May 1897	3,750,000	C.
Anchorin Leland	Colorado	600,000	600,000	1	.01	Oct 1897	84,000	G.
American Gold	Colorado	300,000	3,000,000	10	.02	Aug 1897	273,000	G. S. L.
Atlantic	Michigan	40,000	1,000,000	25	1 00	Feb. 1897	740,000	C.
Bald Butte	Montana	250,000	250,000	1	.03	Sept 1897	512,500	G. S.
Bangkok-C-Bell	Colorado	600,000	600,000	1	.01	July 1896	107,510	S. L. C.
Big Six	Colorado	500,000	500,000	1	00½	April 1897	5,000	G. S.
Boston & Montana	Montana	150,000	3,750,000	25	3 00	Aug 1897	6,275,000	G. C. S.
Bullion Beck and Champion	Utah	100,000	1,000,000	10	.50	Mar 1897	2,465,000	G. S.
Bunker Hill and S	Idaho	300,000	3,000,000	10	.05	Oct 1897	324,000	S. L.
Cariboo	British Col.	800,000	800,000	1	.02	May 1897	156,965	G.
C. O. D.	Colorado	500,000	500,000	1	.01	March 1896	25,000	G.
Calumet & Hecla	Michigan	10,000	2,500,000	25	10 00	Oct. 1897	50,850,000	C.
Centennial Eureka	Utah	30,000	1,500,000	50	1 00	Mar 1897	2,010,000	S. L.
Central Lead	Missouri	4,000	400,000	100	1 00	Oct 1897	16,000	L.
Charleston	South Car.	10,000	1,000,000	100	1 00	Feb 1897	150,000	.....
Champion	California	34,000	340,000	10	25	Aug 1897	278,200	G.
Consolidated, California and Virginia	Nevada	216,000	21,600,000	100	25	March 1895	3,592,800	G. S.
Copper Queen Consolidated	Arizona	200,000	2,000,000	10	.25	June 1895	1,910,000	C.
Crescent	Utah	24,000	600,000	25	.....	July 1897	280,000	.....
Daly	Utah	150,000	3,000,000	20	.25	May 1897	2,925,000	S. L.
Deadwood Terra	Dakota	200,000	5,000,000	25	.40	June 1897	1,320,000	G.
De Lamar	Idaho	400,000	2,000,000	5	.25	Jan 1897	2,250,100	S. L.
Della S.	Colorado	1,000,000	1,000,000	1	.10	Jan 1897	60,000	G.
Doe Run	Missouri	5,000	500,000	100	.50	October 1897	.....	L.
Dalton and Lark	Utah	2,500,000	2,500,000	1	00½	August 1896	87,500	S. L.
Elkton Consolidated	Colorado	1,250,000	1,250,000	1	.03	Sept 1897	361,960	G. S.
El Paso	Colorado	650,000	650,000	1	.01	Aug 1897	5,393	G. S.
Florence	Montana	500,000	2,500,000	5	.01	May 1897	132,530	S.
Galena	Utah	100,000	1,000,000	10	.05	Jan. 1897	71,000	G. S. L.
Garfield Grouse	Colorado	1,200,000	1,200,000	1	.01	Feb. 1897	24,000	G.
Geyser-Marion	Utah	300,000	1,500,000	5	.03	Nov 1897	54,000	G.
Golden Eagle	Colorado	1,000,000	1,000,000	1	.01	Sep. 1896	10,000	G.
Golden Fleece	Colorado	600,000	600,000	1	.01	Feb. 1897	569,179	G. S.
Gold Coin	Colorado	200,000	1,000,000	5	.05	Aug 1897	150,000	G. S.
Gold and Globe	Colorado	750,000	750,000	1	3-10	July 1897	51,625	G.
Hecla Consolidated	Montana	30,000	1,500,000	50	.50	Feb 1897	2,175,000	S. G. L. C.
Helena & Frisco	Idaho	500,000	2,500,000	5	.04	August 1896	475,000	S. L.
Hightland	S. Dakota	100,000	10,000,000	100	20	Oct 1897	3,424,918	G.
Holy Terror	S. Dakota	300,000	300,000	1	.03	Sept 1897	18,000	G.
Homestake	Dakota	125,000	12,500,000	100	.25	Oct. 1897	6,431,250	G.
Hope	Montana	100,000	1,000,000	10	.10	Nov 1897	732,232	S.
Horn Silver	Utah	400,000	10,000,000	25	12½	January 1896	5,080,000	S. L.
Idaho	Brit. Col.	500,000	500,000	1	.05	Mar 1887	152,000	.....
Iowa	Colorado	1,000,000	1,000,000	1	00½	Oct 1897	65,000	G.
Iron Mountain	Montana	500,000	5,000,000	10	.01	Sept 1897	497,500	S.
Isabella	Colorado	2,250,000	225,000	100	00½	June 1897	270,000	G.
Kearsarge	Michigan	40,000	1,000,000	25	.10	Aug 1897	160,000	C.
Last Chance	Brit. Col.	500,000	500,000	1	.04	Jan 1897	42,000	S. L.
Le Roi	British Col.	500,000	2,500,000	5	.10	Oct 1897	625,000	G.
Minnesota	Minnesota	165,000	16,500,000	100	1 50	July 1896	3,240,000	I.
Montana Ore Purchasing	Montana	40,000	1,000,000	25	.01	October 1897	640,000	.....
Moose	Colorado	600,000	600,000	1	.01	January 1896	186,000	G.
Morning Star	California	2,400	240,000	100	.8 00	Sept. 1897	558,600	G.
Mt. Rosa	Colorado	1,000,000	1,000,000	1	00½	Oct. 1896	30,000	G.
Mercur	Utah	200,000	5,000,000	25	12½	Feb 1897	825,000	G.
Mammoth	Utah	400,000	10,000,000	25	.05	Nov. 1896	1,150,000	G. S. O.
Moon Anchor Gold	Colorado	600,000	600,000	1	02½	Nov 1897	63,000	G.
New Elkhorn	Colorado	300,000	1,500,000	5	.24	Sep. 1896	72,000	G.
New York & Hon. Rosario	Central A.	150,000	1,500,000	10	.10	Oct. 1897	832,500	S. G.
Napa	California	100,000	700,000	7	.20	Oct 1897	870,000	Q.
New Idria Quicksilver	California	100,000	500,000	5	.10	Sept 1897	20,000	Q.
Ontario	Utah	150,000	15,000,000	100	10	June 1897	13,445,000	S. L.
Osceola	Michigan	50,000	1,250,000	25	1 00	June 1897	2,172,500	C.
Parrot	Montana	230,000	2,300,000	10	.06	June 1897	1,856,122	C.
Pennsylvania Consolidated	California	51,500	5,150,000	10	.05	Sept 1897	20,750	.....
Portland	Colorado	3,000,000	3,000,000	1	.01	Oct 1897	1,163,000	G. S.
Princess	Colorado	1,000,000	1,000,000	1	00½	Feb 1897	45,000	G.
Quincy	Idaho	100,000	2,500,000	25	4 00	August 1897	9,470,000	C.
Rambler-Cariboo	Brit. Col.	1,000,000	1,000,000	1	.02	April 1897	40,000	.....
Reco	Brit. Col.	1,000,000	1,000,000	1	.50	May 1897	187,500	S. L.
Sacramento	Utah	1,000,000	5,000,000	5	00½	March 1897	22,000	G.
Small Hopes Consolidated	Colorado	250,000	5,000,000	20	.10	Mar 1896	3,275,000	S.
South Swanses	Utah	150,000	150,000	1	.05	Oct 1897	59,960	S. L.
Standard	California	200,000	20,000,000	100	.10	Sept 1897	3,757,868	G. S.
St. Joseph	Missouri	250,000	2,500,000	10	.15	Oct 1897	24,000	L.
Silver King	Utah	150,000	3,000,000	.20	.25	October 1897	1,237,500	S. L. G.
Slocan Star	Brit. Col.	2,000,000	1,000,000	.50	.05	Mar 1897	350,000	.....
Smuggler Union	Colorado	50,000	5,000,000	100	1.00	Oct 1896	150,000	G. S.
Swansea	Utah	100,000	500,000	5	.05	Oct 1897	61,500	S. L.
Tom Boy	Colorado	200,000	2,000,000	10	.20	March 1896	410,000	G.
Tamarack	Michigan	60,000	1,500,000	25	3 00	June 1897	4,930,000	C.
Union	Colorado	1,250,000	1,250,000	1	.01	June 1896	73,000	S.
United Verde	Arizona	300,000	3,000,000	10	.25	December 1893	562,500	C.
Utah	Utah	100,000	1,000,000	10	.02	Feb. 1897	175,000	G. S.
Utah Consolidated	Utah	30,000	150,000	5	.02	Sept 1896	3,000	S. L.
Victor	Colorado	200,000	1,000,000	5	.10	March 1897	765,000	G.
Western Mine Enterprise	Montana	500,000	500,000	1	.10	Mar 1897	12,000	.....
War Eagle	British Col.	500,000	500,000	1	.08	October 1896	187,000

S, Silver.

G, Gold

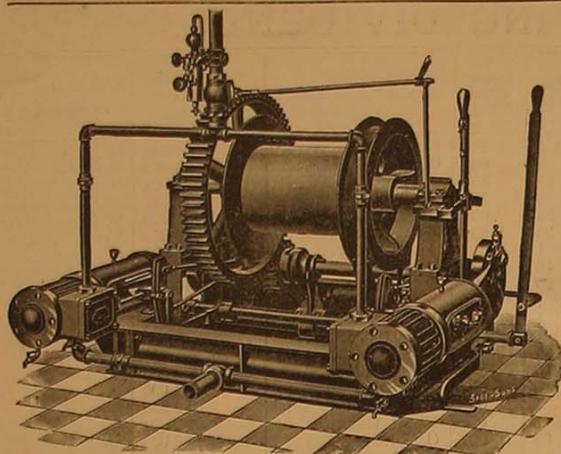
L, Lead.

C, Copper.

Q, Quicksilver.

I, Iron.

B, Borax.



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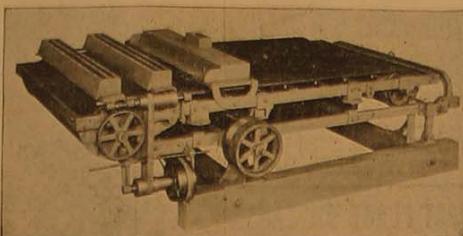
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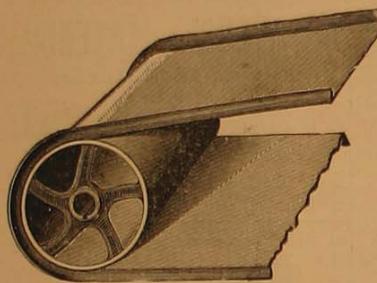


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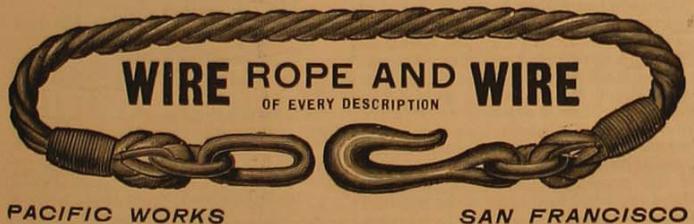


This illustration shows the edge flanging outwardly as it passes over the pulley. This relieves the strain from the top and bottom of the edge by directing the strain automatically to the concave surface of the edge. Therefore all belts have been so constructed that when they pass over the pulleys or rolls, a direct strain comes upon the top or at the base of the edges causing the edges to break away from the body of the belts in a very short time. *We avoid this Mechanical Defect by our Spadone Curved Edges.* Belts made to fit any machine—4, 5 and 6 feet wide. Prices and samples on application.

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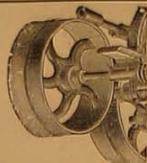
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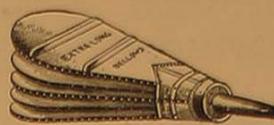
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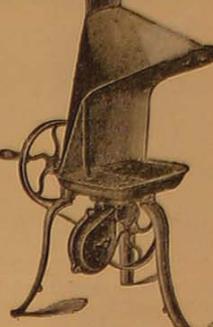
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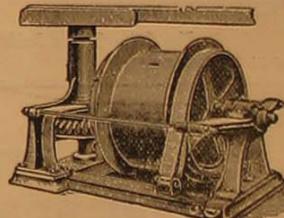
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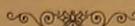
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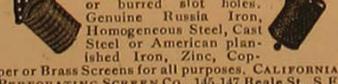
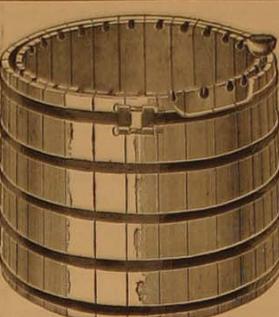
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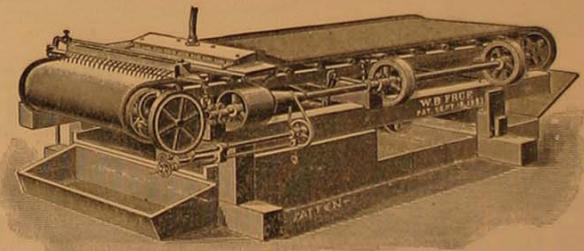
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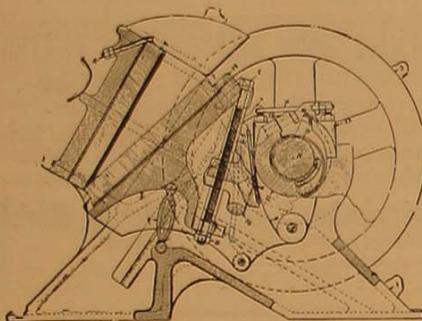
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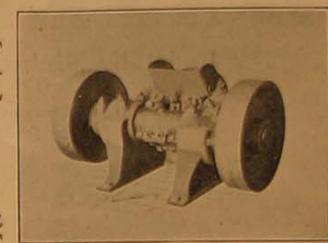
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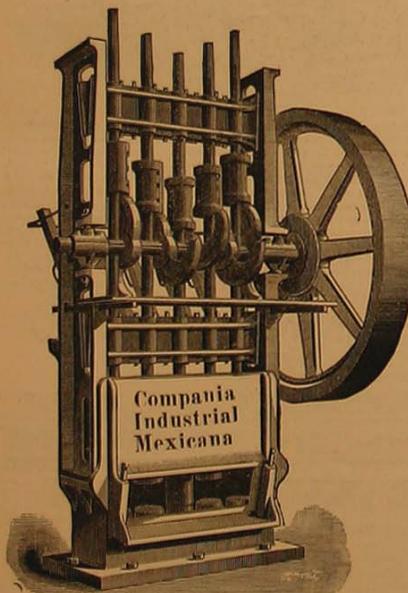


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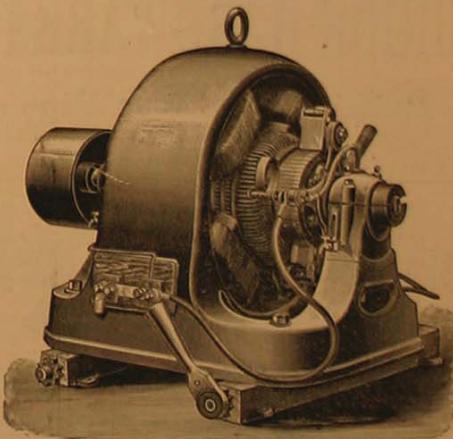
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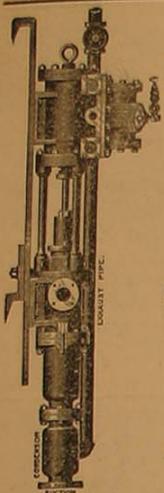
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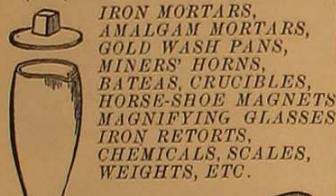
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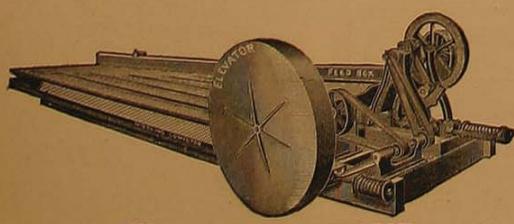
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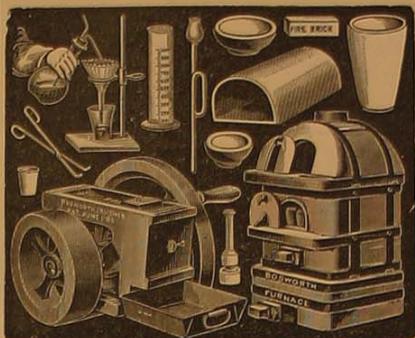
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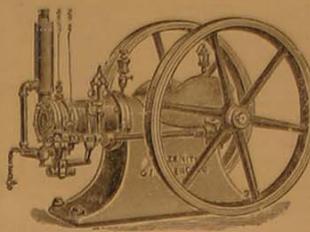
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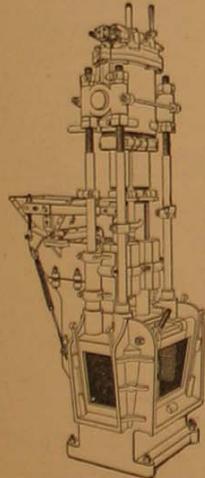
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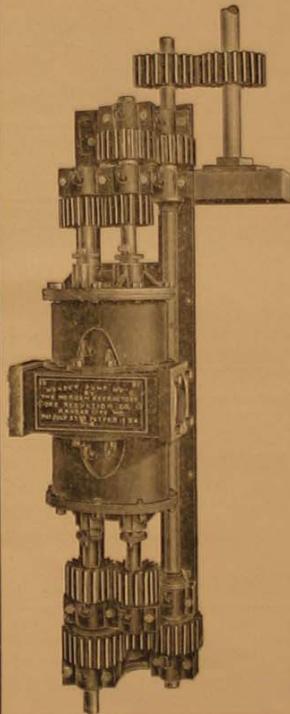
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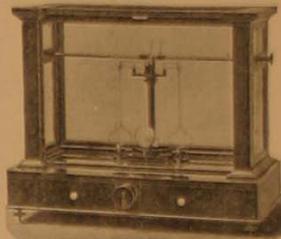


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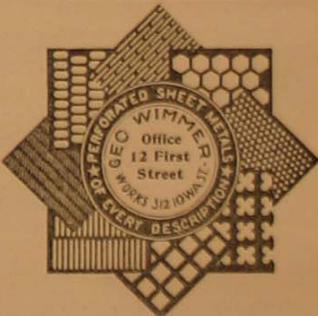
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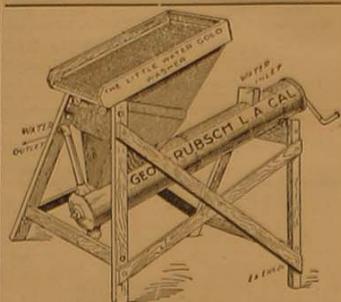
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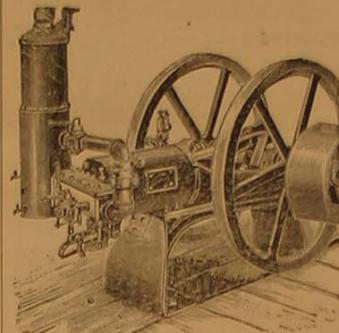
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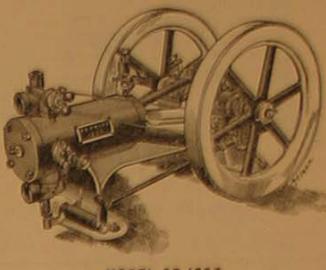
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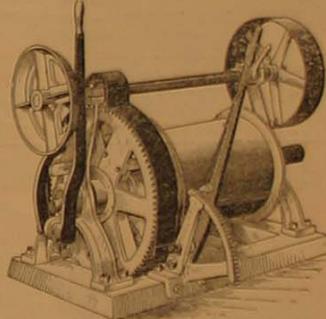
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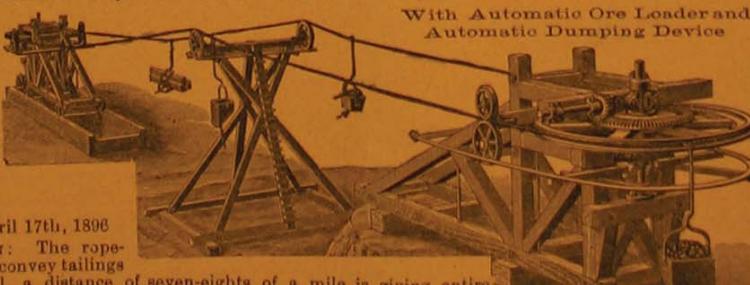
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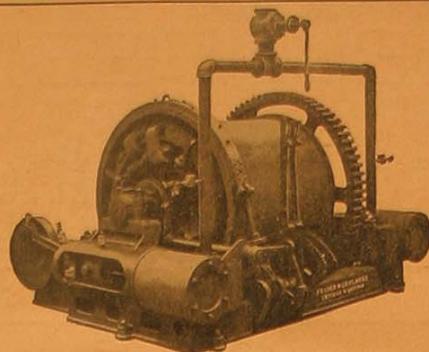
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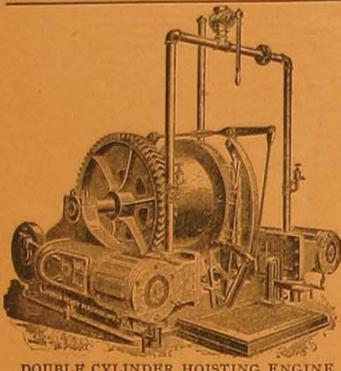
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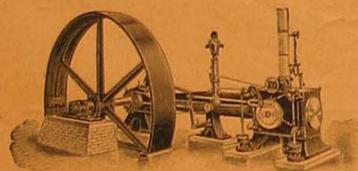
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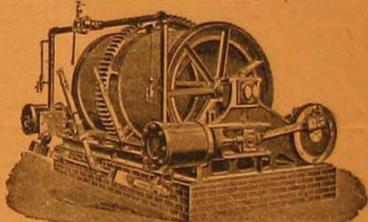
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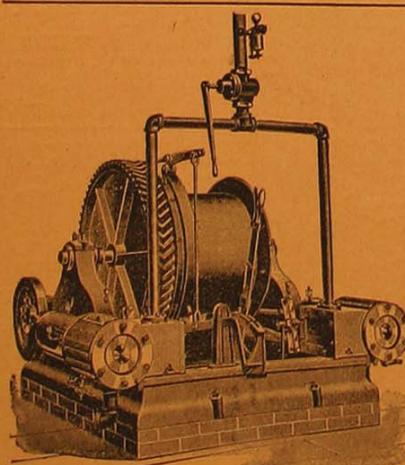
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